Oltre a descrivere gli elementi di una comunicazione asincrona, questo programma è utile durante il trasferimento di programmi GW-BASIC e di dati al sistema e dal sistema.

```
10 REM
20 REM *** Programma di Test RS232
30 REM
40 SCREEN 0,0
50 KEY OFF:CLS:CLOSE
60 DEFINT A-Z
62 LOCATE 25,1
64 PRINT STRING$(60," ")
70 FALSE=0:TRUE=NOT FALSE
80 MENU = 5
90 XOFF$ = CHR$(19):XONS=CHR$(17)
92 LOCATE 25,1: PRINT "TTY Async Program"
94 LOCATE 1,1: LINE INUT "Baud?"; SPEED$
100 ON COM(1) GOSUB 730
110 COMFIL$="COM1:1200,E,7"
120 OPEN COMFIL$ AS 1
130 REM
140 REM *** Modo Talk ***
150 REM
160 CLS
170 LOCATE 25,1:PRINT"RS232 test program running in TALK
    MODE";
180 PAUSE=FALSE
190 LOCATE 1,1
200 A$=INKEY$:IF A$=""THEN 220
210 IF ASC(A$)=MENU THEN 290 ELSE PRINT #1,A$;
220 IF EOF(1) THEN 200
230 IF LOC(1)>50 THEN PAUSE=TRUE: PRINT #1, XOFF$
240 A$=INPUT$(LOC(1),1)
250 PRINT A$;:IF LOC(1)>0 THEN 230
260 IF PAUSE THEN PAUSE=FALSE: PRINT #1, XON$;
270 GOTO 200
280 REM
290 REM *** Modo Command ***
300 REM
```

Fig. 7-1 Programma TTY (cont.)

```
310 CLS
320 LOCATE 25,1:PRINT"RS232 test program running in
    COMMAND MODE";
330 LOCATE 1,1
340 INPUT"FILE":DSKFIL$
350 LOCATE 1,1:PRINT STRING$ (80," "):LOCATE 1,1
360 INPUT "(T)ransmit or (R)eceive ":TXRX$
370 IF TXRX$ = "T" THEN OPEN DSKFIL$ FOR
    INPUT AS 3:GOTO 580
380 IF TXRX$ = "R" THEN 410
390 GOTO 350
400 REM
410 REM *** Modo Receive ***
420 REM
430 LOCATE 25,32 : PRINT "FILE RECEIVE MODE";
440 OPEN DISKFIL$ FOR OUTPUT AS 3
450 IF EOF(1): THEN GOSUB 520
460 IF LOC(1)>50 THEN PAUSE = TRUE: PRINT #1,XOFF$;
470 A$ = INPUT$(LOC(1),1)
480 PRINT #3,A$;
490 IF LOC(1)>0 THEN 460
500 IF PAUSE THEN PAUSE = FALSE:PRINT #1, XON$;
510 GOTO 450
520 FOR I = 1 TO 5000
530 IF NOT EOF(1) THEN RETURN
540 NEXT I
550 CLOSE #3
560 RETURN 140
570 REM
580 REM *** Modo Transmit ***
590 REM
600 LOCATE 25,32:PRINT"FILE TRANSMIT MODE";
610 COM(1) ON
620 XFLAG = 1
630 WHILE NOT EOF(3)
640 A$ = INPUT$(1,3)
650 WHILE XFLAG = 0 :WEND
660 PRINT #1,(A$);
670 WEND
680 COM(1) OFF
```

Fig. 7-1 Programma TTY (cont.)

```
690 PRINT #1,CHR$(26);
700 CLOSE 3
710 GOTO 140
720 REM
730 REM *** Routine di ricezione XON/XOFF ***
740 REM
750 IF EOF(1) THEN RETURN
760 B$ = INPUT$(LOC(1),1)
770 IF LEN(B$) = 2 THEN 790
780 IF B$ = XOFF$ THEN 810
790 XFLAG = 1
800 RETURN
810 XFLAG = 0
820 RETURN
```

Fig. 7-1 Programma TTY

Note sull'Esempio di Programmazione TTY

Numero di Linea	Commento
10-90	Definisce gli attributi del video ed inizializza le variabili del programma.
94	Consente di introdurre da tastiera la velocità di comunicazione (in bps).
100	Specifica il numero di linea della prima istruzione della routine di rilevamento di eventi di comunicazione associata al canale numero 1.
110-120	Apre ed inizializza il canale di comunicazione 1 con la velocità introdotta da tastiera (in bps), parità pari e 7 bit dati.
170	Visualizza sulla 25ª linea del video un messaggio indicante il modo operativo (Modo Talk).

P R O C O M M

Version 2.4.1

R E F E R E N C E M A N U A L

Datastorm Technologies, Inc.
P.O. Box 1471
Columbia, MO 65205
BBS: (314) 449-9401

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Datastorm Technologies, Inc. was previously known as PIL Software Systems.

This manual was completely updated to reflect the current state of the program as of release 2.4.

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PREFACE TO VERSION 2.4

Quite a number of things have changed for this release, most notably the command language. See the accompanying file PRCM24.NEW for a complete list. Enough has changed that it might be wise to delete your existing .PRM files and create a new one. This may not be necessary in all cases; however, if strange things start to occur try that before calling in with any complaints.

Speaking of calling in: our apologies to everyone who has tried to call the BBS and couldn't get through. We are receiving a tremendous volume of calls and the phone is always busy. Please do not call the operator to complain; there are no technical problems at present, just lots of callers. Late this year we will be adding a second line for registered users only who will receive priority support.

And about support: while we try to answer all the mail, electronic and otherwise, that we get, it sometimes takes us a while to get around to it. Especially stuff from non-registered users. Please be patient, and remember that we do not guarantee to provide support of any kind to non-registered users.

About this manual: as the name implies, this is a reference manual describing the operation of ProComm. It is not intended as a tutorial on communications in general. For more general and introductory information on communications see:

> Glossbrenner, Alfred. The Complete Handbook of Personal Computer Communications, 2nd edition. New York: St. Martins Press, 1985.
>
> Jordan, Larry E. Communications and Networking for the IBM PC, 1st edition. Bowie, Maryland: Robert J. Brady Company.

WARNING: Version 2.4, like some previous versions, uses an overlay structure. This means that not all of the program is loaded into memory at once. As different sections of the program are required, they are read off the disk and into memory. All of the overlays are kept in the executable file PROCOMM.EXE.

The practical implication of the overlay scheme is that PROCOMM.EXE must always be available to read overlays from. On a floppy system, this means that you cannot remove the disk on which PROCOMM.EXE resides from the drive on which it was executed. If you do, the overlay linker assumes that the PROCOMM.EXE file is open and residing on the disk, and writes an updated file directory onto the disk, thereby overwriting any and everything on the diskette.

Obviously this is not a problem for hard disks. The solution for floppy systems is simply not to remove the PROCOMM.EXE disk from the drive. You can easily change the logged drive (via the Alt-B or CHDIR commands) to access files on other drives.

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1. I N T R O D U C T I O N

ProComm is a general purpose program designed to provide easy and convenient access to a broad variety of telecommunications tasks. Most of the program is written in the "C" programming language, with some assembly language routines for optimum performance. Included in its abilities are the sorts of features one would expect to find in highly sophisticated telecommunications software:

* the ability to emulate a number of popular terminals;

* a dialing directory containing one hundred entries;

* automatic redial facilities for connecting with hard to reach numbers;

* several popular file transfer protocols including XMODEM, Kermit, Telink and more;

* command files to control automatic logon and unattended operation;

* a DOS gateway which allows you to execute DOS commands or other programs while you are still on line;

* a host of additional features, including keyboard macros, disk and printer logging and many others covered in detail on the following pages.

Hardware Requirements

ProComm requires a minimum of 130K of available RAM to execute properly--that is, 130K in addition to the operating system and any resident programs, including such memory resident programs as SideKick, SuperKey, etc. If you are operating with less than 192K total RAM, ProComm might not be able to load. It runs under MS-DOS on the IBM PC, XT, AT or any close compatible, and may be used with color, composite or monochrome displays.

Because ProComm may have a relatively large number of files open at once, you must assure that the FILES parameter in your CONFIG.SYS file is large enough to accommodate them. We suggest using FILES=20 (or larger). Your DOS manual can give you more information on the CONFIG.SYS file, or see the Host Mode section of this manual.

In addition, of course, you must have a working modem. The default settings in ProComm are all established for Hayes compatible modems. If your modem is not fully Hayes compatible, consult your modem owner's guide for details on switch settings, commands, and so forth. In order for ProComm to work correctly, particularly in Host Mode, your modem's Carrier Detect (CD) must be set to follow the true state of the carrier,

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not forced true (or "high") by dip-switch settings. Similarly, the CD should not be set to follow DTR ("Data Terminal Ready") but rather to follow the "true state" or "RS-232 Convention" (or however your owner's manual state it). And finally, DTR should not be forced high by dip-switch settings; it, too, should follow real state.

ProComm Files

When it is first loaded, ProComm creates several files which it will use on subsequent operation:

PROCOMM.PRM, the default parameter file;

PROCOMM.DIR, a dialing directory file;

PROCOMM.KEY, a keyboard macro file;

PROCOMM.XLT, the translate table file;

PROCOMM.HST, the Host Mode audit trail;

In addition, if you plan to use the Host Mode, you might want to create a file called PROCOMM.MSG, which holds the Host Mode welcome message.

The ProComm Environment Variable

ProComm can use the environment variable PROCOMM= to tell it where to look for its files. ProComm first searches the current directory for necessary files. If the files are not there, then ProComm will search through the directory pointed to by PROCOMM= (if it exists). If the files are found in neither place, and must be created, they will be created in the directory pointed to by PROCOMM=. If the environment variable is not set, files will be created by default in the current directory.

You can set the environment variable by issuing the DOS command

SET PROCOMM=pathname <CR>

where "pathname" is a fully qualified path name ending with a backslash. You may issue this command either from the command line or from a batch file. For example, if you have the command

SET PROCOMM=C:\COMM\ProComm\

in your AUTOEXEC file, ProComm will know to look for its files in the C:\COMM\ProComm subdirectory, and you can use the program from anywhere on your system and still have just one set of ProComm files. Be sure to remember to end the pathname with a backslash (\), or ProComm will get confused and have problems reading the necessary files.

You can clear the environment variable null with the command

SET PROCOMM= <CR>

Consult your DOS manual for more information on environment variables.

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2. GETTING STARTED

You begin a ProComm session by issuing the command

ProComm [/S] [/B] [/Ffilename] [/M] [/D]

where /S indicates sound effects, /B indicates black and white operation, /Ffilename indicates a command file, /M indicates screen display mode, and /D indicates the presence of dual monitors. (Commands that are displayed in square brackets, e.g. [/S], are optional).

Command line switches are optional, and may appear in any order. They must, however, be separated by at least one blank space.

Including a "/S" on the command line suppresses ProComm produced sound effects. It does not, however, affect beeps (^G) coming from the remote computer or the alarm function, nor does it control the modem speaker. You can change the default sound settings after you have loaded ProComm by using the General SetUp option of the SetUp screen (Alt-S).

The "/B" option may be used to run the program in black and white. This feature is useful if you have a composite monitor attached to a color graphics display card. Specifying "/B" will tell ProComm to use only black, white and high intensity white for all displays. If the "/B" command line switch is omitted, ProComm will adjust itself for either color or monochrome operation. To make black and white colors the default, begin a ProComm session using the "/B" option, then save the current colors using the Alt-Z (set colors) facility.

Specify "/F" with a filename to execute a command file immediately after loading ProComm. For example, to execute the command file "EXAMPLE.CMD" as the first thing ProComm does after loading, enter

ProComm /Fexample.cmd <CR>

Command files are described in detail in Section 7.

The "/M" option tells ProComm to perform screen displays using BIOS calls rather than writing directly to the screen buffer. This option is useful for running ProComm under multi-tasking operating systems. The screen write method is also selectable through the SETUP (Alt-S) facility.

The "/D" option is used when you have both a color and a monochrome display connected to your computer. This option may cause erratic behavior if used in conjunction with an EGA card/monochrome monitor combination.

When the program begins it displays the ProComm logo and copyright notice. The first few times you use ProComm the program information

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screen will also appear. Once you have read the information screen, press any key to continue. You can also display the program information screen by pressing Alt-I from Terminal Mode.

WARNING: Version 2.4, like some previous versions, uses an overlay structure. This means that not all of the program is loaded into memory at once. As different sections of the program are required, they are read off the disk and into memory. All of the overlays are kept in the executable file PROCOMM.EXE.

The practical implication of the overlay scheme is that PROCOMM.EXE must always be available to read overlays from. On a floppy system, this means that you cannot remove the disk on which PROCOMM.EXE resides from the drive on which it was executed. If you do, the overlay linker assumes that the PROCOMM.EXE file is open and residing on the disk, and writes an updated file directory onto the disk, thereby overwriting any and everything on the diskette.

Obviously this is not a problem for hard disks. The solution for floppy systems is simply not to remove the PROCOMM.EXE disk from the drive. You can easily change the logged drive (via the Alt-B or CHDIR commands) to access files on other drives.

Terminal Mode

After the opening display and the program initialization, you are left in Terminal Mode. Most of your communicating will take place here. The bottom line of the screen is reserved as a status line, but the rest of the screen is open for use. When you first enter Terminal Mode, the screen will be blank except for the status line at the bottom of the screen:

```
+------------+--------+-----+-------+----------+-------+--+--+
|ALT F10 HELP|ANSI-BBS| HDX |300 N81|LOG CLOSED|PRT OFF|CR|CR|
+------------+--------+-----+-------+----------+-------+--+--+
```

This line indicates the current status of several of ProComm's features:

ALT F10 HELP indicates that you can press Alt-F10 to activate the ProComm Help Screen. This section of the status line also indicates what is currently occurring. For example, if you activate the screen dump, then the words "SCREEN DUMP" will replace "ALT F10 HELP".

The next segment of the status line ("ANSI-BBS") indicates the currently activated terminal emulation.

The third status indicator is for duplex: "HDX" indicates half-duplex; "FDX" indicates full-duplex.

In the fourth block the status indicator reflects the modem line settings, in this case 300 baud, no parity, 8 data bits, and 1 stop bit.

The LOG status indicates whether you have activated the feature which allows "logging" incoming data directly to disk. If that feature is active, then the indicator will say "LOG OPEN".

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ProComm allows the option of sending incoming data directly to your printer; if you select this option, then the printer status indicator will say "PRT ON"; otherwise it remains at "PRT OFF".

If you activate the feature which adds a line feed to all incoming carriage returns, the next indicator will show "CR-LF"; otherwise it remains at just "CR".

Similarly, the final item indicates the status of the CR/CR-LF output feature.

Most ProComm features are called from Terminal Mode and are executed in a window which leaves your original screen intact. Press Alt-F10 to display a help screen which lists all available commands. You may select commands either from the help screen or directly from Terminal Mode. You can return to Terminal Mode from most windows by pressing <ESC>.

Terminal Emulations

Most keyboard and screen functions will operate locally as you expect them to. What they do on the remote computer depends on which terminal emulation you are using. ProComm supports ten popular terminal configurations:

- IBM 3101
- DEC VT-100
- DEC VT-52
- Televideo 910/920
- Televideo 925/950
- Wyse 100
- Lear Siegler ADM-3/5
- Heath/Zenith 19
- ANSI-BBS
- ADDS Viewpoint

Appendix A contains a complete list of the functions supported for each terminal.

To change the emulation currently in use, select the Terminal SetUp option from the main SetUp screen (Alt-S), or use the Emulate command in a command file.

Line Settings

ProComm supports a variety of communications configurations. You may select the baud rate, number of data and stop bits, parity, and duplex. The program defaults to 300 baud operation, with 8 data bits, 1 stop bit, no parity and full duplex (echo off).

Use the Alt-P (Line Settings) command to review or change the active line control settings. After opening the Line Settings window, ProComm displays the current settings. Enter a number from 1 to 12 to change to a predefined setting. Use the numbers 13 through 19 to set up a customized configuration. Enter 20 to select COM1 as your active port, 21 to use COM2, 22 for COM3, and 23 for COM4.

Use the Save option (24) to make the new configuration your default. If you change the parameter settings without saving them to disk, they will be used only for the current session, and will return to their original settings the next time you use ProComm.

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Once you have made your selections, press <ESC> to return to Terminal Mode. The new parameters are now in effect.

String Translation

There are a number of situations in which ProComm will translate strings going to or coming from the modem. The strings that are translated include the modem initialization string, the modem command, dialing directory numbers, long distance codes, keyboard macros, modem connect messages and several script commands. The translation allows you to send carriage returns, escape codes and other control characters to the modem, as well as providing a pause feature. ProComm translation characters can be specified in the General SetUp screen. Translation characters are provided for CR, ESC, CTRL-char and pause.

The default CR translation character is the exclamation point ("!"). Anytime ProComm encounters the CR translation character in one of the strings mentioned above, it replaces that character with a CR (ASCII 13). To send the character without translation use two of them together. For example, when "!" is the CR translate character, a keyboard macro set to "PASSWORD!" sends the string "PASSWORD" followed by a carriage return. A keyboard macro set to "GO AWAY!!" will be translated as "GO AWAY!". Since two of these characters in a row are translated as the true character, some other method is necessary to send two adjacent carriage returns. You can do so by using the CTRL-char translation described below. For example, if the CTRL translate character is set to the caret ("^") the string "^M^M" is translated as 2 carriage returns (because Ctrl-M is a CR).

The default ESC translation character is the vertical bar ("|"). When ProComm encounters this character in one of the translated strings, it replaces it with an ESC (ASCII 27). Again, to send the character without translation use two of them together. For example, when "|" is the ESC translation character, a keyboard macro set to "|[2J" sends the VT100 command for clear screen (ESC [2 J). A keyboard macro set to "|| box ||" will be translated as "| box |". Again, since two consecutive translation characters are translated as the true character, some other method is necessary to send two adjacent escapes. As with the CR translation character, you can indicate two consecutive escapes by using the CTRL-char translation described below. If, for example, the CTRL translation character is set to the caret ("^") the string "^[^[" is translated as 2 escapes (because Ctrl-[is an ESC).

The CTRL character translation is slightly different. It is used as a lead-in marker to indicate that the following character should be interpreted as a CTRL character. For example, using the default CTRL translate character "^" (the caret), the string "^C" would be interpreted as a Ctrl-C (ASCII 3). Again, two translation characters together are treated as the actual character, so "^^C" would be translated as "^C" (the caret character followed by a capital C).

The final translation character provided is the pause. If this character is encountered during translation, ProComm will pause for 1/2 second before doing anything else. The default translate pause character is the tilde ("~"). This translation character is significantly different from the others in that two pause characters together cause a 1 second pause, three together cause a one and one-half second pause, and so forth.

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Multiple pause translation characters are not interpreted as a single character. If you wish to actually send that character (e.g. the tilde) you must change the setup for the pause translation character.

It is important to note the difference between the translation pause character and a modem pause character. The translation pause character causes a pause in characters being sent to the modem. This character is appropriate for pauses around a modem escape code, as in a hang-up string, or for allowing the modem to respond to something before continuing. On the other hand, a modem pause character, such as the comma used by Hayes, causes a pause in characters sent from the modem to the phone line. It is appropriate for such tasks as waiting for a second dial tone when dialing out through a PBX or office telephone system. The translation pause character and the modem pause character are not the same and should not be confused.

Help Screen

The Help Screen lists the command keystrokes used to execute a ProComm feature. The Help Screen is displayed when you press Alt-F10 while in the Terminal Mode. Pressing Alt-F10 produces this screen:

```
++-------------------------------------------------------------------++
||                      P r o C o m m   H e l p                      ||
|+-------------------------------------------------------------------+|
| MAJOR FUNCTIONS          UTILITY FUNCTIONS        FILE FUNCTIONS    |
|                                                                     |
|Dialing Directory  Alt-D Program Info ..... Alt-I Send files ... PgUp |
|Automatic Redial.. Alt-R Setup Screen ..... Alt-S Receive files  PgDn |
|Keyboard Macros .. Alt-M Kermit Server Cmd  Alt-K Directory .... Alt-F|
|Line Settings .... Alt-P Change Directory . Alt-B View a File .. Alt-V|
|Translate Table .. Alt-W Clear Screen ..... Alt-C Screen Dump .. Alt-G|
|Editor ........... Alt-A Toggle Duplex .... Alt-E Log Toggle .. Alt-F1|
|Exit ............. Alt-X Hang Up Phone .... Alt-H Log Hold .... Alt-F2|
|Host Mode ........ Alt-Q Elapsed Time ..... Alt-T                    |
|Chat Mode ........ Alt-O Print On/Off ..... Alt-L                    |
|DOS Gateway ..... Alt-F4 Set Colors ....... Alt-Z                    |
|Command Files ... Alt-F5 Auto Answer ...... Alt-Y                    |
|Redisplay ....... Alt-F6 Toggle CR-CR/LF . Alt-F3                    |
|                         Break Key ....... Alt-F7                    |
+-------------------------------------------------------------------+
```

You can select any of these features from the Help Screen or directly from Terminal Mode. The Help Screen is merely a help, not a required step for reaching the options, nor do you need to return to the Terminal Mode before selecting one of the options. Each of the features listed in the Help Screen is described in more detail in Section 4, and many are considered in still greater detail in other sections of this manual. You can return directly to Terminal Mode from the Help Screen by pressing any non-command key.

Exiting ProComm

You can exit ProComm at any time from Terminal Mode or the Help Screen by pressing Alt-X. You will be asked to confirm the decision to leave; press "Y" to exit or "N" to resume work.

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3. THE SETUP SCREEN

ProComm allows you to define many of your own power-up defaults for system parameters. You can also change a setting temporarily, use it for the current session, then automatically go back to your default settings for the next session. Setup is reached via the Alt-S command. It is divided into 6 sections: Modem Setup, Terminal Setup, Kermit Setup, General Setup, Host Mode Setup and ASCII File Transfer Setup.

Press Alt-S from the Help Window or while in Terminal Mode to activate the SetUp facility. The screen will clear and present you with these options:

1) MODEM SETUP
2) TERMINAL SETUP
3) KERMIT SETUP
4) GENERAL SETUP
5) HOST MODE SETUP
6) ASCII TRANSFER SETUP
S) SAVE SETUP TO DISK

You can exit the main setup screen at any time by pressing <ESC>; any changes you have made but not saved to disk (using the "S" option from this screen) will be in effect only for the current ProComm session.

Select a setup section by typing its number and pressing <CR>. The screen will clear and display the current settings for that section. To change a setting, enter the number of the setting you wish to change and press <CR>. Then make your change as described below. If, after selecting a parameter, you decide not to change it, you can retain the current value by simply pressing <ESC>.

If the parameter you have selected requires a string, type in the characters for the new string and press <CR>. Note that pressing <CR> without typing any characters will clear the setting; if you wish to retain the current string, press <ESC>.

Some parameters offer you a selection of valid values. Press the space bar to cycle among the available values. When the value you desire is displayed, press <CR> to accept it.

If the setting you are changing requires a number, enter the new number and press <CR>. ProComm will check to make sure that the number falls within a valid range. If you have selected a number outside that range, ProComm will inform you of the error and allow you to select another number.

After making your changes in a particular section, press <ESC> to return to the main SetUp Menu. If you wish to save your changes to disk, select "S" from that menu. If you choose the Save option, the current settings will become your power-up defaults. If you do not save the setup, the

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changes you have made will be in effect for only the current ProComm session.

Modem SetUp

If you select option 1 from the main SetUp Menu, a screen similar to the following will appear:

```
----------------------+ MODEM SETUP +----------------------

  1) Modem init string .... ATE0 S7=60 S11=55 V1 X1 S0=0!
  2) Dialing command ...... ATDT
  3) Dialing cmd suffix ... !

  4) Connect string ....... CONNECT
  5) No Connect string 1 .. BUSY
  6) No Connect string 2 .. VOICE
  7) No Connect string 3 .. NO CARRIER
  8) No Connect string 4 ..

  9) Hangup string ........ ~~~+++~~~ATH0!

 10) Redial timeout delay . 30
 11) Redial pause delay ... 2

------------------------------------------------------------
OPTION ->                                        ESC Exit
```

You may change these options by typing the appropriate selection number.

1) Modem init string

The modem initialization string is sent to the modem every time you begin a ProComm session, and again whenever you exit Host Mode. It can be up to 46 characters in length, and may contain carriage returns or control characters using the translate conventions described in Section 2. Modem initialization strings vary among different types of modems. The default, configured for Hayes or compatible modems, is 'AT E0 S7=60 S11=55 S0=0 V1 X1!', where

AT is the command prefix

E0 sets modem echo of commands off

S7=60 sets the maximum wait time for a carrier at 60 seconds

S11=55 sets touch tone spacing (and is very fast)

S0=0 turns off the modem's auto answer feature

V1 activates verbal result codes

X1 activates the extended result codes

! causes ProComm to send a CR to the modem at the end of the modem

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initialization string.

Be sure to include that last "!" if you need ProComm to send a CR at the end of the command.

The initialization string may be tailored to suit your particular modem and needs. Consult your modem user's guide for details regarding the operation and available commands for your modem.

2) Dialing command

The dialing command is used to instruct the modem to dial a number. It is sent to the modem by the Dial (Alt-D) and Redial (Alt-R) functions, followed by the number to dial and any long distance codes you might specify. The default is 'ATDT' where

AT is the command prefix

D is the dial command

T turns on touch tone dialing (P is used for pulse dialing)

The modem dialing command may contain imbedded pauses, CRs, ESCs and CTRL characters using the conventions on string translation described in Section 2.

3) Dialing cmd suffix

The dialing command suffix is sent to the modem at the end of a dialing command to indicate that the command is complete. The default command is "!", which is translated as a CR, and should be correct for most modems.

A complete dialing command includes the Dialing Command, the telephone number to be dialed (and any associated codes or numbers), and the Dialing Command Suffix. A local call using tone dialing, for example, might look like 'ATDT 123-4567!' where

ATDT is the dialing command

123-4567 is the number being dialed

and

! (translated as a CR) is the dialing command suffix

4) Connect string

The connect string is the message your modem sends to ProComm to indicate that a connection has been made. The default is "CONNECT". ProComm uses this value during automatic redial (Alt-R) to determine when a connection has been made. Note that this parameter must be set correctly (including upper- or lower-case) for auto redial to work. Translation is in effect for this string. For example, if your modem sends '<LF><LF><CR>' to indicate CONNECT (as the IBM PCjr modem does), set the Connect String to '^J^J^M'. (A Ctrl-J is a LF, and a Ctrl-M is a CR).

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5) - 8) Modem No Connect strings

These strings are also used by the auto redial feature. They should be set to modem messages that indicate that a connection was not achieved. The defaults are "BUSY", "VOICE" and "NO CARRIER"; a fourth message may be added by selecting option number 8. Again, these strings must be exact matches to the messages your modem displays, including upper and lower case. Some modems do not support these call progress monitoring features, although most support at least "NO CARRIER".

9) Hang-up string

The hang-up string is the command sent to the modem to cause it to hang up. When Alt-H (Hangup) is pressed, ProComm first attempts to hang-up by dropping the Data Terminal Ready (DTR) line. If that attempt fails (determined by checking Carrier Detect [CD]), ProComm will send the hang-up string to the modem. The default, set up for Hayes and compatible modems, is "~~~+++~~~ATH0!", where

~~~ is a 1 1/2 second delay

+++ is the modem escape sequence to drop into command mode

~~~ is another 1 1/2 second delay

AT is the modem command prefix

H0 is the hang-up command

! sends a <CR>

The "~" and "!" characters are translated by ProComm, not the modem (see Section 2 on string translation for information about how to change these characters). The "+++" surrounded by the 1 1/2 second pauses causes the modem to go into command state, where the hang-up command is then issued. For more information see the Alt-H command, in Section 4.

10) Redial Timeout Delay

This command determines the number of seconds that ProComm will wait during Redial (Alt-R) for a Connect or No Connect response from the modem. If the timeout delay is exceeded before a modem response is received, ProComm will cycle and attempt another redial. You should be sure that your modem's timeout value is set higher than this timeout value, or strange results may occur.

This value may also be modified on the fly during a redial attempt. See Section 5 on Redialing for more details.

11) Redial Pause Delay

The redial pause delay is the number of seconds that ProComm will pause between each dialing attempt during a redial. The pause is provided to

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let the modem settle down between calls. The default is 2 seconds, and the minimum pause time is 1 second.

Terminal SetUp

When you select the Terminal SetUp option (number 2), you will be presented with a screen similar to the following:

```
--------------------+  TERMINAL SETUP +----------------------

1) Terminal emulation ... ANSI-BBS 10) Enquiry ..... OFF
2) Duplex ............... HALF     11) Break Length (ms). 350
3) Flow Control ......... NONE
4) CR translation (in) .. CR
5) CR translation (out) . CR
6) BS translation ....... DEST
7) BS Key definition .... BS
8) Line wrap ............ OFF
9) Scroll ............... ON

------------------------------------------------------------
OPTION ==>                                        ESC Exit
```

Select a parameter to change by entering its number followed by <CR>.

1) Terminal Emulation

Terminal emulation means using your computer to act like a terminal. Use this parameter to select the terminal you wish to emulate. All of ProComm's terminal emulations are described in detail in Appendix A.

After selecting option 1, press the space bar until the terminal you wish to use is displayed. Then press <CR> to make that terminal the current emulation. Take care to insure that the rest of the settable terminal parameters match what is expected for the terminal type you select. The DEC VT100 is the most popular terminal emulation for our users. For general BBS work, we suggest ANSI-BBS.

2) Duplex

You can control the default duplex setting here. Your choices are full duplex (no echo) and half duplex (local echo). The system administrator of the system you are calling can tell you what is appropriate for a particular system.

In general, if what you type is not displayed on the screen, but should be, try going to half duplex. If you see two of every character you type (e.g., "ttwwoo ooff eevveerryy cchhaarraacctteerr"), change to full duplex. Duplex may also be changed on-the-fly using the Alt-E command.

3) Flow control

Flow control (sometimes called "handshaking") is a method computers use

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to control the way they talk back and forth. It's similar to a traffic light in that it determines in which direction traffic can flow at what time. The only flow control that ProComm currently supports is XON/XOFF, so your choices for this parameter are XON/XOFF or NONE. If you wish to use flow control set this option to XON/XOFF; otherwise select NONE. ProComm performs XON/XOFF at the interrupt level. To prevent deadlock because of extraneous XOFFs caused by line noise, ProComm allows you to reset the XOFF flag. If you see a message on the status line that indicates that an XOFF was received, but you think it is not valid, press <ESC> to clear the XOFF flag and allow you to continue work.

4) CR translation (in)

This feature is used to set the power-up default for incoming carriage return translation.

ProComm needs a CR/LF sequence to correctly handle lines sent to it by a remote. The CR (carriage return) moves the cursor to the beginning of the current line, and the LF (line feed) moves it to the next line. Some systems send only a CR and expect you to provide the line feed, while others send both the CR and LF.

When set to CR, ProComm leaves incoming carriage returns alone, and assumes that the remote system will also send a LF. When set to CR/LF, ProComm automatically adds a LF to any CR received. If the lines coming from the remote write on top of each other, you need to set this translation to CR/LF. IF lines appear to be double spaced, go to CR.

Most TTY (non-full screen) applications (including most BBS's) send both the carriage return and line feed, so the ProComm default is CR. You can change this setting on-the-fly without affecting the power up default by using the Alt-F3 command.

5) CR translation (out)

Just as different systems send different line end sequences, they also may need to receive different line end sequences. Some systems need only a CR, while others must have a CR/LF combination.

Use this option to set the ProComm power up default for outgoing carriage return translation. If set to CR, outgoing carriage returns send only the CR. If set to CR/LF, any carriage return sent by ProComm to the remote unit will have a line feed appended to it.

The ProComm default is to send the CR only.

6) BS translation

A backspace (BS) may need to be interpreted differently depending upon the terminal emulation in use. In most cases it is "destructive" (DEST); that is, the cursor will both move to the left and delete the character in that position when the BS key is pressed or a BS is received from the remote. In other cases, the VT100 for instance, the BS behaves like a cursor-left command, merely moving the cursor without erasing any characters; it is thus "non-destructive" (NON-DEST). You may choose the

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correct behavior for your application using this parameter. The ProComm default is DEST.

7) BS key definition

Normally, when the backspace key is pressed it sends a BS (ASCII 8) to the remote unit; by using this option, however, you can force ProComm to transmit a delete (DEL, ASCII 127) instead. The BS key definition option is especially useful when the terminal being emulated has a Del key where the IBM-PC has its BS key.

The ProComm default is to send a BS.

8) Line wrap

If an incoming line is greater than 80 characters long, it can be handled in two different ways. It may be truncated (cut off) so that characters past the 80th are lost, or it may be wrapped around to continue on the next line. This setting controls which method ProComm will use.

If line wrap is set ON, lines greater than 80 characters in length will wrap around and be displayed on the next line. With line wrap OFF, however, lines greater than 80 characters in length will be truncated.

Since most terminals truncate lines, the ProComm default is line wrap OFF.

9) Scroll

The scroll parameter controls what happens if ProComm receives a CR (or CR/LF) while the cursor is positioned at the bottom line. If the scroll option is set ON, ProComm moves all the lines on the screen up one line (losing the top line) and the new line is printed in the blank space at the bottom of the screen. If scroll is OFF, the cursor returns to the far left column, and the new line overprints the old. Normally this feature will be set ON (the default), although for some full screen applications you may need to inhibit screen scrolling.

10) Break Length (ms)

A break is a spacing condition on the line. It is often used to get a remote system's attention. ProComm uses Alt-F7 (or CTRL-BREAK on IBM machines) to signal a break.

The break length option allows you to set the length (in milliseconds) of the break signal. The default is 350 ms, and is sufficient for most systems.

11) Enquiry (Ctrl-E)

Some systems send an ENQ control character (Ctrl-E, ASCII 5) and expect an identifying sequence to be returned. If Enquiry is set ON, ProComm will respond to an ENQ by sending the keyboard macro assigned to Alt-0.

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If Enquiry is set OFF, the ENQ will be treated as just another character.

A third option is available for users of the CompuServe Information Service (CIS). CompuServe uses an ENQ to signal the beginning of an automatic file transfer. If you wish to be able to perform automatic file transfers using the CompuServe 'B' protocol while logged on to CIS, set this option to CIS B. Be sure, however, that you are not set to CIS B while logged onto other systems, or strange results may occur.

The ProComm default for Enquiry is OFF.

Kermit SetUp

The Kermit Setup section provides control over a number of Kermit file transfer parameters. After selecting option 3 from the main SetUp Menu, you will be presented with a screen similar to the following:

```
----------------------------+ KERMIT SETUP +-----------------------------

 1) Control quote char ... 35  (ASCII)
 2) Maximum packet size .. 90
 3) Pad character ........ 0   (ASCII)
 4) Number of pad chars .. 0
 5) 8th bit quote char ... 38  (ASCII)
 6) Handshake char ....... 0   (ASCII)
 7) End of line char ..... 13  (ASCII)
 8) File type ............ BINARY
 9) Block check type ..... 1 BYTE CHECKSUM

------------------------------------------------------------------------
OPTION ->                                                      ESC Exit
```

We do not have the space here to give a Kermit tutorial. If you do not know what these elements are, you probably should not change them. Consult the system administrator for your system if you have any questions regarding their Kermit installation.

One parameter worth mentioning is the Handshake character (option 6). In most implementations you should use the default of 0, which implies no handshaking. In the case of line at a time (not full screen) IBM mainframe access in half duplex, a handshake value of ASCII 17 is appropriate.

A further discussion of ProComm's Kermit implementation is available in the file transfer section, Section 6.

General SetUp

Selecting the General Setup option from the main SetUp Menu will cause the following screen to appear:

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```
----------------------------+ GENERAL SETUP +----------------------------

 1) Editor name .........
 2) Default d/l path ....
 3) Default log file ..... PROCOMM.LOG  12) Xlat pause character . ~
 4) Screen dump file ..... PROCOMM.IMG  13) Xlat CR character .... !
 5) Screen write method .. DIRECT       14) Xlat CTRL character .. ^
 6) Translate table ...... OFF          15) Xlat ESC character ... |
 7) Sound effects ........ ON
 8) Alarm sound .......... ON           16) Aborted downloads .... KEEP
 9) Alarm time (secs) .... 5
10) Exploding widows ..... YES          17) Transmit pacing (ms) . 30
11) XMODEM mode ......... NORMAL

------------------------------------------------------------------------
OPTION =>                                                    ESC Exit
```

1) Editor name

Use this parameter to name the program to be accessed by the Alt-A (Editor) command. Pressing Alt-A will execute this program from within ProComm, without the necessity of popping out through the DOS Gateway or exiting ProComm. This is very handy for editing or listing a file while online, as well as for developing ProComm command files and many other tasks.

The Editor name parameter can be specified in a number of ways. It may be a complete filename with path (e.g. C:\WP\EDIT\EDITOR.EXE), just the program name without extension (e.g. EDITOR) or anything in between. If no path is specified, ProComm will search the directories specified in the environment variable PATH for the indicated program.

ProComm can run almost any .EXE or .COM program using this feature as long as there is enough memory available. Keep in mind that ProComm itself requires approximately 130K of RAM, and the operating system another 17-30K (depending on the version). Other resident programs (such as SideKick) can take up even more. If you are running only 192K (the minimum possible to operate ProComm), you may not have enough memory to load the desired program unless it is quite small.

The Alt-A command cannot be used to execute a batch (.BAT) file.

2) Default d/l path

This option allows you to specify where you want to put files that you download. If no path is specified, downloads will be directed to the currently logged drive and directory. If a path is specified, the file will be placed in the named directory. For example, if this option is set to

```
C:\COMM\PROCOMM\DL\
```

then all files that you download will be placed in the \COMM\PROCOMM\DL directory on drive C:. Keep in mind that the pathname must end with a backslash ("\") in order for ProComm to interpret it correctly. Consult your DOS user's guide for details about directory naming conventions.

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You can override the download directory option when using the file transfer protocols which require you to name the incoming file (XMODEM, YMODEM, and ASCII). To do so, include a path when specifying the filename to download. For example, when downloading a file using the XMODEM protocol, ProComm will prompt you for the name of the file to be downloaded. If you specify

C:\BASIC\FILENAME.EXT

as the filename, the file will go directly to the \BASIC directory on the C: drive, and not to the default download directory. The other file transfer protocols include the filename as part of the data being sent, so you will not be prompted for the filename to use and thus cannot override the default download directory option.

3) Default log file

When you activate file logging (Alt-F1), ProComm will prompt you for the name of the log file to use. Pressing <CR> without naming a file directs the log to the default file. Use this parameter to set the default name for the log file to use when file logging is in effect. If the file exists, ProComm will not overwrite existing data; rather, new data will be appended to the end of the file. If the file does not exist it will be created in the current directory and the data will be saved to it.

4) Screen dump file

This option names the file to which ProComm will append screen dumps (Alt-G). If the screen dump file does not exist when Alt-G is pressed, it will be created in the current directory. Again, ProComm will not overwrite an existing file, but will append the screen dump data to the end of an existing file.

5) Screen write method

ProComm can use either of two different methods to perform its screen writing. In the first method, characters are written directly to the screen buffer memory area. In the second, characters are written using BIOS (operating system) function calls. Normally you would use direct screen writes because they are much faster. In some cases, however, such as under multi-tasking operating systems or when you are using a not-so-compatible computer, you might wish to use the BIOS. The ProComm default is to use direct screen writes. You may also select BIOS mode using the "/M" command line option.

6) Translate table

This setting controls whether or not ProComm uses the translation table to translate, or strip, incoming characters. Selecting YES causes the translate table to be activated immediately, as well as on program startup. ProComm defaults to NO. The translate table may be defined and toggled ON/OFF using the Alt-W command from the Terminal Mode or from the Help Screen. The translate table is discussed in more detail later in

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this manual.

7) Sound effects

This option controls the use of ProComm-produced sound effects. These sound effects include the open and close window sounds, as well as some other audible feedback. It does not control the alarm function, sounds generated by the modem or beeps (Ctrl-G, ASCII 7) sent from the host unit. Sound effects are ON by default, and may also be controlled using the "/S" command line option (see Section 2).

8) Alarm sound

This setting controls whether or not the alarm is audible. The alarm is used to indicate the end of file transfers, connects during re-dials and other events. It may also be activated by the ALARM script command. If the alarm sound is ON, these events will trigger a ringing sound which will continue for the number of seconds specified by the alarm time setting. If the alarm sound is OFF, the appropriate message will flash for the indicated time but will be silent. By default, alarm sound is ON.

9) Alarm time (secs)

Use the alarm time setting to determine the time (in seconds) that you wish the alarm sound to ring. If, for example, you want the file transfer alarm to ring for two minutes, then set the alarm time to 120.

10) Exploding windows

ProComm makes extensive use of windows in its operation. This option controls the manner in which those windows appear. If you select YES, ProComm will use "exploding" windows, i.e. windows that start small and rapidly grow to full size. If, on the other hand, you select NO, then windows will appear without expanding frames. By default ProComm will use exploding windows. This is purely a cosmetic effect, and has no bearing on the functionality of the program.

11) XMODEM mode

Some remote systems, such as CompuServe, cannot handle the normal XMODEM error timeout periods. They need a less critical timing situation. For these systems, set the XMODEM mode to RELAXED to avoid file transfer aborts resulting from timing errors. In most cases, however, this option should be set to NORMAL.

12) Xlat pause character

The translate pause character parameter is used to set the character which is to be interpreted as a pause during string translation. ProComm uses the tilde (~) as the default. See Section 2 for more details on string translation.

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13) Xlat CR character

This parameter sets the character which is to be interpreted as a carriage return during string translation (the translate CR character). By default, an exclamation point (!) is used. See Section 2 for details about translation characters.

14) Xlat CTRL character

The translate CTRL character parameter is used to set the character which is interpreted as signaling a control character during string translation. The default is the caret (^). Section 2 has more details.

15) Xlat ESC character

Use this parameter to set the character which is to be interpreted as an ESC during string translation. By default, ProComm uses a vertical bar (|). See Section 2 on string translation for more details.

16) Aborted downloads

This setting will determine the disposition of files that are aborted during downloads. If it is set to KEEP, these partial files are kept on the disk and are your responsibility. If it is set to DISCARD, they are erased from your disk when the download aborts. By default, aborted downloads are kept.

17) Transmit pacing (ms)

This parameter controls output pacing of strings. Strings that are paced include all the setup strings, macro keys, and terminal control sequences such as function keys and cursor control. This option is provided for those systems too slow to handle ProComm's speed.

Host Mode SetUp

Selecting the Host Mode Setup option from the main SetUp Menu will cause the Host Mode SetUp screen to appear:

```
--------------------------+ HOST MODE SETUP +--------------------------

 1) Host ID string ....... Welcome to ProComm Host!
 2) Auto answer string ... ~~~+++~~~ATS0=1!
 3) Host mode password ... PASSWORD
 4) DOS shell password ... SHELL
 5) Auto baud detect ..... METHOD 2
 6) Connection type ...... MODEM

------------------------------------------------------------------------
OPTION =>                                                      ESC Exit
```

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1) Host ID string

The host ID string is a message that is sent to a remote caller when he connects to ProComm in Host Mode. It can be set to anything you desire. Notice that the default message includes a CR translation character (here the "!") at the end of the string.

2) Auto answer string

The auto answer string can be thought of as a modem initialization string for use with the host mode. Use it to set the modem into auto answer mode. The default string is "~~~+++~~~ATS0=1!", where

~~~ is a 1 1/2 second pause

+++ sets the modem in command state

~~~ is another 1 1/2 second pause

AT is the command prefix

S0=1 sets the modem to answer after one ring

! causes ProComm to send a CR.

The "~~~" part is a ProComm command rather than a modem command and will probably not have to be reset. The other commands depend on the needs of your particular modem. Consult your modem user's guide for further information.

3) Host mode password

ProComm Host Mode provides some security by means of access passwords. The host mode password must be correctly entered by all remote callers before they are granted access to your system. The caller must match the password completely, including upper- and lower-case letters. If you set the password to null, then callers can get through the password prompt by pressing <CR> without typing anything else.

4) DOS shell password

Callers must know this secondary password to be allowed access to the remote DOS shell. Be very careful about this password; you do not want just anyone to have system-level access on your machine. You should definitely not leave the DOS shell password blank, nor should you leave it at the default.

5) Auto baud detect

Auto baud detect allows ProComm to match the baud rate at which a user calls.

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ProComm provides three choices of auto baud detect in host mode. The first choice is NONE, that is ProComm will not attempt to match baud rates with incoming calls. Users must call at the same rate that ProComm is set to in order to be connected. The second choice, called MODEM MSG, uses modem messages to determine baud rate. Your modem must support the messages CONNECT (for 300 baud), CONNECT 1200 and CONNECT 2400 in order to use MODEM MSG. In addition, your modem must be configured to return these message. That configuration is usually achieved via the Xn modem command, which may be placed in either the modem initialization string, or the auto answer string. The third choice, known as KEY HIT, requires that callers enter several <CR>s (or SPACES if at 2400 baud) in order for ProComm to match baud rates. No modem messages are required. ProComm defaults to KEY HIT.

6) Connection type

The connection type determines who ProComm Host Mode is talking to. When set to MODEM, ProComm assumes a modem connection and performs as described in the Host Mode section later in this manual. When set to DIRECT, ProComm bypasses the carrier detect process and immediately initiates a connection; this feature is useful for direct connecting to other computers.

ASCII Transfer SetUp

The ASCII Transfer SetUp Menu is used to determine the characteristics of file transfers in the ASCII mode:

```
-----------------------+ ASCII TRANSFER SETUP +------------------------

      ASCII UPLOAD

 1) Echo locally ......... NO
 2) Expand blank lines ... YES

 3) Pace character ....... 0   (ASCII)
 4) Character pacing ..... 15  (1/1000 sec)
 5) Line pacing .......... 10  (1/10 sec)
 6) CR translation ....... NONE
 5) LF translation ....... STRIP

      ASCII DOWNLOAD

 8) CR translation ....... NONE
 9) LF translation ....... NONE

--------------------------------------------------------------------------
OPTION =>                                                    ESC Exit
```

ASCII UpLoad

1) Echo locally

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Use this setting to control whether or not ProComm echoes locally what it is transferring during ASCII uploads. In most cases set this to NO and let the remote do any desired echoing. If the remote and ProComm are both displaying what is being transferred, you'll have a real mess on your screen.

2) Expand blank lines

Many systems interpret a blank line to mean "end of text". This is especially true when entering online messages. Use this option to tell ProComm to expand blank lines. This would allow you to include blank lines (for spacing) in messages that you are uploading without the remote thinking it is the end of the message. When set ON, ProComm will add a space to lines being uploaded that contain only a CR or CR/LF. When set OFF, lines are uploaded as they exist. By default ProComm will expand blank lines.

3) Pace character

The Pace character provides one means of pacing uploaded text. If the pace character is set to a value other than 0, ProComm will send a line, then wait to receive the specified character before sending the next line. Enter the decimal value for the ASCII character desired; for example, set it to 13 to indicate a carriage return. ProComm will send a line and then wait to receive a CR from the remote before continuing to send the next line. The default is 0, which means that no pace character is used.

4) Character pacing

Another pacing option that ProComm provides is character pacing. Specifying this option causes ProComm to pause after each character has been sent during an ASCII upload. This can help avoid over-running the remote computer's input buffer. If character pacing is set to a value other than 0, ProComm will send a character, then wait the specified number of milliseconds (1/1000 second) before sending another character. By default, character pacing is set at 15 ms. Character pacing may be used in conjunction with any of the other pacing options.

5) Line pacing

ProComm can also perform line pacing during ASCII uploads if you so desire. Line pacing is similar to character pacing except that the pause occurs after each line, rather than after each character. After a line is sent, the program will wait for the time specified (in 1/10 seconds) before sending the next line. Pacing may be set to zero if the remote can handle that speed of transmission. Line pacing may be used in conjunction with character pacing; it is generally not needed if you are using a pace character. The ProComm default for line pacing is 10-tenths of a second (i.e., one full second).

6) CR translation (uploads)

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As discussed above, different systems require different line end sequences. This option controls outgoing carriage return translation during an ASCII upload. You have 3 options. If CR translation is set to NONE, no translation is performed and carriage returns are passed directly to the remote. If set to STRIP, all carriage returns encountered in the file being uploaded are stripped, and not sent. Finally, if set to ADD LF, a line feed will be added to all outgoing carriage returns. ProComm defaults to NONE.

7) LF translation (uploads)

LF translation is similar to CR translation, but affects line feeds. As with CR translation, you have 3 options. If you select NONE, no translation is performed. If you set LF translation to STRIP, all line feeds encountered in the file being uploaded are stripped. If you set it to ADD CR, a carriage return will precede all outgoing line feeds. The default for outgoing LF translation is STRIP.

You should pay close attention to what is being done with these parameters. On a PC, most text files are delimited by a CR/LF sequence. Most mainframe and other systems, however, want to receive ASCII files with only a CR as the delimiter. Thus the ProComm defaults take a file containing CR/LF sequences and transmit it as a CR-only delimited file. The various combinations available in ProComm will allow you to transfer ASCII text files to virtually any system.

ASCII Download

8) CR translation

The download CR translation is exactly like that described above only it applies to text going in the other direction; it translates CRs coming in to ProComm from the remote. There are three options for controlling incoming carriage return translation during ASCII downloads. If CR translation is set to NONE, no translation is performed. STRIP causes all carriage returns encountered in the file being received to be stripped, while ADD LF causes a line feed to be added to all incoming carriage returns. The ProComm default is NONE.

9) LF translation

This option controls incoming line feed translation during ASCII downloads. It also has 3 options. If it is set to NONE, no translation is performed. If it is set to STRIP, all line feeds encountered in the file being downloaded are stripped, and if it is set to ADD CR, a carriage return will be added in front of all received line feeds. NONE is the default translation.

Once again the variety of ASCII translation options will allow you to receive ASCII text files from any system in a format suitable for your PC.

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4. MAJOR FUNCTIONS

After the opening display and the program initialization, you are left in Terminal Mode. The bottom line of the screen is a status line, but the rest of the screen is open for use. Most of your communicating takes place in Terminal Mode, and most ProComm commands are executed from there as well. Commands are usually executed in a window which leaves your original screen intact.

Commands are activated by pressing certain keystrokes while in Terminal Mode. You may, however, get a listing of available commands by pressing Alt-F10, the Help key. You can then execute commands directly from the Help Screen without returning to the Terminal Mode. Pressing any non-command key will return you to Terminal Mode.

The Help Screen lists all of the major ProComm features, divided into three blocks: Major Functions, Utility Functions, and File Functions.

Major Functions

Dialing Directory

Pressing Alt-D activates the dialing directory. The dialing directory is an online phone list which contains up to 100 entries and various information relating to those entries such as baud rate, parity, echo, etc. The functions available from the dialing directory are described in detail in Section 5.

Automatic Redial

The automatic redial facility (accessed with Alt-R) provides for automatic redialing of a single number or a list of numbers. It is especially useful for connecting to hard-to-reach numbers. Its features and how to use them are examined in Section 5.

Keyboard Macros

Keyboard macros allow you to assign character strings to the keys Alt-0 through Alt-9, which may then be used to transmit the assigned string to the remote with a single keystroke. Macro strings may be up to 50 characters long, and may contain imbedded control codes and carriage returns using the translate conventions described in Section 2. To send the string you've assigned, simply press the appropriate key.

Access the keyboard macro facility by pressing Alt-M from Terminal Mode or the Help Screen. A window will appear listing the current key assignments. To revise an assignment press "R", then the key to assign

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(Alt-0 through Alt-9). Now type the string you wish assigned to that key. Press <CR> when you are done. Respond "Y" to the 'OK' prompt to accept the assignment; otherwise, it is discarded. After creating a group of macros be sure to save them to disk, using the "S" option, or they will be discarded when you leave the current ProComm session. Press <ESC> to return to Terminal Mode.

You may create and use any number of keyboard macro files for use with different systems. By default, ProComm will load the file called PROCOMM.KEY when it is brought up. To create other .KEY files, first select "C" (clear) to clear out the current macro definitions. Then use the "R" (revise) option as described above to create your new set of definitions. Now choose "S" to save the new definitions. When prompted for a file name, give the name of the file you wish the macro definitions to be saved in. The file may use any valid filename; we suggest using a file extension of .KEY to help distinguish the nature its contents. Pressing CR without naming a file will cause ProComm to store the macros in the default file PROCOMM.KEY.

To load a new macro file select option "L" (load). Then give the name of the macro file to load. Again, if you press <CR> without naming a specific file, ProComm will use the default (PROCOMM.KEY). The named file will be loaded and the new definitions displayed. Macro key files may also be loaded via the MLOAD script command.

Multiple macro key files give you considerable flexibility in using different systems. One thing you can do is create different .KEY files for various systems that you call, then load the macros via a MLOAD command in a script file linked to that system in the dialing directory. If you use a consistent scheme (i.e. user ID in Alt-1, password in Alt-2) you can simplify many of your online tasks.

Line Settings

ProComm supports a wide variety of communications configurations. You may select baud rate, the number of data and stop bits, parity and duplex. The program defaults to 300 baud operation, with 8 data bits, 1 stop bit, no parity and echo off (full duplex).

Use the Alt-P command to review or change the active line control settings. After opening the Line Settings window, ProComm displays the current settings. Enter a number from 1 to 12 to change to a predefined setting. Use the numbers 13 through 19 to define a customized configuration. Enter 20 through 23 to make COM1 through COM4 your active port.

The save option (24) is used to make the new configuration your default. If you change the line settings without saving them to disk, they will be used only for the current session.

Press <ESC> to return to Terminal Mode, and the new settings will be in effect.

Various systems have different line control needs. By far the most common settings are N/8/1 (no parity, 8 data bits and 1 stop bit) and E/7/1 (even parity, 7 data bits and 1 stop bit). Most bulletin board systems (BBS) require N/8/1. Many mainframe computers use E/7/1. When

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calling online services such as CompuServe and The Source via public networks like Telenet and Tymnet, be sure to use E/7/1. A good rule of thumb is if you are at N/8/1 and your screen displays a lot of garbage (graphics characters and the like), switch to E/7/1.

An alternative to using E/7/1 on some systems is to use N/8/1 and strip the high bit off all incoming characters using the translate table. To do so, set the upper 128 (128-255) characters in the translate table to a value exactly 128 less than their ASCII decimal values. Thus 128 would be set to 0, and 255 would be set to 127.

Translate Table

ProComm's translate table provides a means for you to strip or replace unwanted characters you receive from the remote. Press Alt-W to display the current translation settings. The table will indicate whether translation is currently taking place, as well as showing you the current translation values for the ASCII characters 0-127. Press F2 to display translation values for characters 128-255. Pressing the keys F3 and F4 will toggle the translation effect on or off. You may set the default condition from the General Setup screen in the Setup menu (Alt-S).

To change a translation value, enter the decimal ASCII code to reset. Now enter the translated value (again in decimal). To strip an unwanted character, translate it to 0. For example, suppose the system you are calling sends a lot of beeps (ASCII 7) and you want to filter them out. Bring up the translate table (Alt-W). Enter a 7 at the 'NUMBER TO CHANGE' prompt, and then a 0 at the 'NEW VALUE' prompt. The change will be highlighted in the display. Now save the table by pressing F1, and activate it by pressing F3. All beeps (ASCII 7) coming from the remote will now be stripped out. Use the same technique to translate a given value to something else. Press <ESC> to return to Terminal Mode.

One important note: when you turn the translate table ON, it reads the .XLT file from disk and overwrites the existing table. Thus you cannot make some changes, then turn on the table, since the changes you made will be overwritten. You must either make the changes, save the changes and then turn on the table, or turn on the table, and then make your changes. To make the changes effective for only the current session, do not save the changes to disk.

Editor

To call an editor, word processor or other program from within ProComm, press Alt-A. ProComm will then attempt to load the program you listed as the editor name in the General Setup portion of the Setup screen. You can specify any executable program (except batch files) to be called by the Alt-A command. This command is quite useful for viewing a file, doing some editing, or whatever.

In order for this function to work, however, a couple of things must be correctly set. First, COMMAND.COM must reside on the drive you booted from. Second, ProComm must be able to find the program you requested. (See the discussion on the editor name in the General Setup section). Third, your computer must have enough available memory to execute the desired program. There is no default for this feature, so be sure to set

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it up before attempting to use it.

Exit

To exit ProComm, press Alt-X. You will be asked to verify your decision to assure that you are not exiting by mistake. Answer "Y" to exit, "N" to continue working. Be sure that you have saved any setup changes you have made and wish to keep before exiting or they will be lost. Similarly, be sure you have completed your online tasks and signed off, since ProComm will hangup when you exit.

Host Mode

ProComm includes a limited Host Mode which allows remote access to your computer. You can activate the Host Mode by pressing Alt-Q. Host mode features password protection, file transfers, operator page and DOS shell access. It can also display a canned message or graphics screen, and maintain a history of logons. Host Mode is described in detail in Section 8.

Chat Mode

Chat Mode provides split screen operation for online conversations. Incoming text (and echoed outgoing text if in full duplex) is displayed in the top 18 lines of the screen. Outgoing text is displayed in the bottom 4 lines.

Activate Chat Mode by pressing Alt-O. Limited line editing is provided for outgoing text; use the backspace key to edit a line before it gets sent. Text is sent to the remote only after a carriage return or when the buffer gets full (about 3 full lines of text). Ctrl-Q and Ctrl-S keystrokes (XON and XOFF), however, are sent immediately.

Printer and disk logging will continue if they are active when Chat Mode begins. The Redisplay facility (Alt-F6) is also available in Chat Mode. Press <ESC> to exit Chat Mode and return to the normal Terminal Mode.

DOS Gateway

ProComm provides a gateway to DOS which allows you to execute DOS commands or other programs without ending the ProComm session. To activate the DOS gateway press Alt-F4. ProComm uses the COMSPEC environment variable to find the command processor, so make sure that COMMAND.COM is present on the boot drive, or the gateway will not work correctly. Type "EXIT" on the DOS command line when you wish to return to ProComm.

CAUTION: executing other communications programs through the Gateway may cause erratic results when you return to ProComm. If this occurs, using the Alt-P command to reset ProComm's line settings may re-establish the connection.

Command Files

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Command files are text files containing ProComm commands. You can use command files to perform automatic logons, unattended file transfers, and many other tasks. You can create command files using virtually any word processor provided that the program can save files in a "non-document"--or straight ASCII--format. Command files may be executed on program startup, from the command file menu (Alt-F5), or by linking them with dialing directory entries. See Section 7 for a complete discussion of command files and the ProComm command set.

Redisplay

To redisplay lines that have scrolled off your screen, press Alt-F6. ProComm will display the last 10000 characters that have come in, beginning with the most recent screen.

You can move through the redisplay buffer in any of several ways: use the PgUp and PgDn keys to scroll one page in either direction; use the up and down arrow keys to move one line in either direction. Pressing the Home key will cause the first page of the buffer to display, while pressing the End key will display the last page. To search for specific text with the redisplay buffer, press "F" or "/". A window will open, and you will be prompted for the string to search for. If the string is found, ProComm will scroll to the page it is on and highlight it. To search for the same string again, press <CR> when ProComm prompts you for the text to look for. Searches are not case sensitive.

Utility Functions

Program Information

To display the ProComm program information screen, press Alt-I. Type any key to return to Terminal Mode.

SetUp Screen

Use the SetUp option (Alt-S) to access the 6 setup areas: modem setup, terminal setup, Kermit setup, general setup, host mode setup, and ASCII file transfer setup. These options are described in detail in Section 3.

Kermit Server Command

ProComm provides several Kermit server commands for use with remote systems running in Kermit server mode. Access the command menu by pressing Alt-K, then select the desired command from the menu. See section 6 for more details regarding these commands.

Change Directory

You can use the Alt-B command to change the default directory and/or the active drive. To change directories, press Alt-B. A window will appear naming the current drive and directory. Simply enter the drive

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(including a colon), directory or both and press <CR>. You have now changed the default drive and or directory. Press <ESC> to leave the default unchanged.

Clear Screen

Press Alt-C to clear your screen and home the cursor. This is a local effect only. Clearing the screen will also reset ProComm to its default colors, useful when connecting to systems which change colors and don't reset them.

Toggle Duplex

Pressing Alt-E will toggle ProComm between full and half duplex. You can set the default duplex in ProComm's SetUp (Alt-S) screen. If characters you type appear twice (e.g., "AAppeeaarr TTwwiiccee") you should set duplex to full. Similarly, if you type something that is not displayed, but should be, try toggling duplex to half. A message is briefly displayed on the status line, and the duplex block (the third block on the status line) indicates whether you are currently operating under half or full duplex ("HDX" or "FDX").

Hang Up Phone

Press Alt-H to hang-up your telephone connection. ProComm will first attempt to hangup by dropping DTR (Data Terminal Ready). If this attempt fails, as indicated by the presence of CD, then the modem hang-up string will be sent to the modem. If ProComm is not causing your modem to hang up correctly, be sure that your modem does not have DTR or CD forced high, and check the hang-up string in the modem SetUp screen (via Alt-S) against the string suggested by your modem user's guide.

Elapsed Time

Pressing Alt-T will display the current time and date, as well as the elapsed time since the last call was made. Elapsed time is reset every time you make a call using the dialing directory or make a connection using the automatic redial facility.

Print On/Off

Press Alt-L to toggle printer logging on or off. If printer logging is toggled on, any information coming from the remote system will be sent directly to your printer as well as to your screen. The status of the printer log is indicated by the message PRT ON or PRT OFF on the status line.

Set Colors

Enter Alt-Z from Terminal Mode to set your local screen colors. A window will open with a list of window selections on the left and instructions on the right. Press the up or down arrow keys to select a window to

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change. Next, press the left or right arrow keys to choose which part of the window to change (background, foreground, or hi-light). Press the space bar to cycle among the color choices. After you have set all the colors you want to change, press <ESC> to exit. You will then be asked if you want to save the color changes to disk. If you save the changes to disk, they will remain until you change them again; otherwise they will remain only for the current session. You can use this last option to set the colors temporarily, try them out during a session, then return to Alt-Z and save them to disk.

Some windows do not appear in the window list but are settable anyway. The Alt-T (elapsed time), Alt-B (change directory), and Alt-X (exit) windows use the same colors as the keyboard macros window. The redial display (Alt-R) uses the phone directory (Alt-D) colors. The SetUp screens (Alt-S) use the help window colors. Communication screen colors are used in the redisplay section and the command file selection window (Alt-F5) uses the file transfer window colors.

Auto Answer

You may control the auto answer feature of most modems using a software command. For instance, sending the command "ATS0=1<CR>" to a Hayes modem tells it to answer the phone on the first ring. Similarly, the command "ATS0=0<CR>" tells that modem to turn auto answer off.

ProComm allows you to issue an auto answer command at the touch of a keystroke. Pressing Alt-Y causes the string you have specified as the auto answer string in the Host Mode section of the SetUp screen to be sent to the modem. Note that this command is used to set the modem into auto answer mode; it is not used to command the modem to answer immediately. You could use a command such as "ATA!" in a keyboard macro to instruct the modem to answer on command. See Sections 3 and 8 for more information regarding the auto answer string.

Toggle CR - CR/LF

Some remote systems delimit lines of text with a single carriage return, while others use a carriage return/line feed combination. ProComm likes to receive lines that end with both a CR and a LF. If necessary, ProComm can add a line feed to each incoming carriage return.

Use Alt-F3 to toggle this feature between CR and CR/LF. The default is CR only, that is, do not add additional LFs. If text lines overwrite each other, the remote is not sending LFs, so switch to CR/LF. If text appears double spaced, try the CR setting. A message is briefly displayed when you toggle this option, and the current setting is reflected in the next-to-last block of the status line. The default condition for this option may be set in the Terminal Setup section of the SetUp facility.

Break

A break is a spacing condition on the line, often used to signal attention to the remote. Pressing CTRL-BREAK will cause the break condition to occur. On some non-IBM machines pressing CTRL-BREAK can

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cause a lockup; therefore ProComm provides another keystroke, Alt-F7, which also causes the break condition to occur. The default time period for a break is 350 milliseconds, but that may be changed via the Terminal SetUp screen. Use the keyboard macro feature if you require that a specific character be sent in order for the remote to realize a break.

File Functions

Send Files (Upload)

ProComm provides a number of common protocols for use transferring files; pressing PgUp will activate the screen listing those protocols and allow you to choose among them. See Section 6 for a detailed description of file transfers.

Receive Files (Download)

Pressing PgDn activates the download menu screen and allows you to select from the available protocols. See Section 6 for more details on file transfers.

Directory

Press Alt-F to get a file listing of the currently logged drive or directory. Enter the file specification ("filespec") at the prompt just as you would in the DOS DIR command. Paths and drives are supported. COMSPEC must be set correctly for this feature to work. That is, you must have COMMAND.COM on the boot drive, or the Alt-F command will not work correctly.

View a File

To examine a file that exists on your system type Alt-V. You will be prompted for the name of the file. Enter the complete filename, including drive and path designator if desired. Use the PgUp and PgDn keys to page through the file. Press Home to go to the beginning of the file. Pressing <ESC> will end the viewing procedure and return to the Terminal Mode. This viewing facility is rather primitive; it is intended only as a convenience. For more complete browsing power, use the Alt-A editor command, or drop through the DOS gateway and use your favorite list program.

Screen Dump

Pressing Alt-G activates a screen dump of the current screen contents. Screen contents are appended to the current .IMG file, which may be specified in the SetUp screen. The default screen dump file is PROCOMM.IMG.

Log Toggle / Log Hold

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ProComm provides two alternatives to file transfer for capturing information: file and printer logging. After initiating the logging procedure, any information coming from the remote system is routed to the log as well as to the screen.

Press Alt-L to begin capturing information to your printer. A message on the status line will indicate that the printer log is open. Pressing Alt-L again will toggle printer logging off.

ProComm writes the logged data to the DOS device PRN. The default value for PRN is LPT1:. You may use the DOS 'MODE' command to redirect PRN. For example, if your printer is on COM1: use the DOS command

```
MODE LPT1:=COM1:
```

to send printer output there.

Data can also be captured to disk, using the Alt-F1 command. Specify the name of the file to be used, or press <CR> to use the default file. If the file already exists, new information will be appended at the end of the file. Press Alt-F2 (Log Hold) to suspend information capture without closing the log file. A message indicating logging status will be displayed on the bottom line of the screen. Press Alt-F1 again to toggle the log file closed.

With the exception of formfeeds, terminal control sequences are not included in the log files.

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5. D I A L I N G D I R E C T O R Y

The ProComm dialing directory automates most of your dialing tasks. The directory holds information for 100 of your most often-called systems. The information includes the name and phone number, as well the communications parameters specific to that entry. Also included in the directory is a user definable modem command, with an optional suffix, and up to four long distance codes that you can use with alternate long-distance services. You can even link command files to dialing directory entries to provide custom setup configurations or to perform logon sequences automatically.

Press Alt-D to access the dialing directory. A window is opened that displays pages of 10 entries at a time:

```
+-------------+ D I A L I N G  D I R E C T O R Y +--------------+
|                                                                |
|            Name                Number       Baud P D S  E  CMD File |
|                                                                |
| 1- ProComm Support BBS   1 314 449-9401  2400-N-8-1  N         |
| 2- ..................... . ... ...-....  1200-N-8-1  N         |
| 3- ..................... . ... ...-....  1200-N-8-1  N         |
| 4- ..................... . ... ...-....  1200-N-8-1  N         |
| 5- ..................... . ... ...-....  1200-N-8-1  N         |
| 6- ..................... . ... ...-....  1200-N-8-1  N         |
| 7- ..................... . ... ...-....  1200-N-8-1  N         |
| 8- ..................... . ... ...-....  1200-N-8-1  N         |
| 9- ..................... . ... ...-....  1200-N-8-1  N         |
|10- ..................... . ... ...-....  1200-N-8-1  N         |
|                                                                |
| ==>  R Revise          M Manual Dialing     Entry to Dial      |
|      P LD Codes        D Delete Entries     F Find             |
|      PgUp/PgDn Page    L Print Entries       /  Scroll         |
|      Home Top Page     End Bottom Page      ESC Exit           |
|                                                                |
|      Modem Dial Cmd:  ATDT                 LD Codes Active:    |
|     Dial Cmd Suffix:  !                    Com Port Active: COM1 |
+----------------------------------------------------------------+
```

The current modem command ("Modem Dial Cmd"), modem command suffix ("Dial Cmd Suffix"), active long distance codes ("LD Codes Active") and the active port ("Com Port Active") are displayed at the bottom of the screen. The modem command defaults to "ATDT", with "!" (translated as a CR) as the suffix.

Use the PgUp and PgDn keys to display the previous or next page of entries. The up and down arrow keys will scroll the display one entry in either direction. The Home key will position the display at the first page in the directory, while the End key will position it at the last page. Press <ESC> to exit the dialing directory.

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Searching for an Entry

The dialing directory also has a search capability. To look for a particular entry press "F" or "/". A window will open asking for the text to search for. Enter the string you wish to be found and press <CR>. ProComm will search the name and number fields for the string you provided. If the string is found, the dialing directory will scroll to the page containing that entry, and the entry will be highlighted.

The dialing directory search facility is not case sensitive. For example, a search for the string "abcd" will match "abcd", "ABCD", "AbCd" or any other mix of upper- and lower-case characters. You can even search for telephone numbers or even parts of numbers. (That is, you can search for "Phil Sidney", just "Sidney", or "555-1586", or even "1586".) If the search routine reaches the end of the dialing directory without finding a match, it will wrap around to the beginning of the directory and continue its search until it has checked each entry once. If the string is still not found, a message to that effect is displayed. To repeat a search for the same text, press "F" or "/" a second time and then immediately press <CR>.

Revising the Dialing Directory

When you first use the dialing directory most of the entries will be empty. The name and phone number fields will be filled with periods; the default baud rate is 1200, with no parity, 8 data bits, 1 stop bit and echo off (full duplex). You may add a new entry or revise an old one by selecting the "R" option. You may also revise the long distance codes (by entering the appropriate LD code identifier: -,+,@,#). An entry need not be displayed on the screen in order to revise it.

Adding or Revising an Entry

To add an entry to the directory, or to change an existing entry, enter "R" at the "==>" prompt. A window will open and you will be asked for the entry to revise. Type the entry number (1-100) you wish to revise. The current values for that entry are displayed at the top of the window. You are prompted first for the name. Press <CR> to retain the current value, or enter up to 24 characters for a new or revised name. You can use the backspace and left arrow keys to edit your entry. Press <CR> when you are done. You will now be prompted for the phone number. Enter only the numbers you need; the number will be right justified on the page. For example, if you are entering a local number, you need not enter spaces for the area code. Press <CR> when you are finished entering the number.

The current baud rate will now be displayed. Press any key (except <ESC> or <CR>) to cycle through the available baud rates. Press <CR> to select the one you want. Use the same technique to select the parity, data bits, stop bits and echo. You will now be prompted for a command file to link to the entry. Enter the filename without an extension or path. The same command file may be linked to any number of dialing directory entries. To clear an existing command file, type a space and then <CR>. If you don't want to link a command file with this entry, then press <CR> without specifying a filename.

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After specifying the command file, you will be asked whether to save the entry to disk. Enter "Y" to save your changes, "N" to abandon them. You may also abandon a revision at any point by pressing <ESC>. If you elect to save the entry, it will be written to disk, then the current page is redisplayed, reflecting the changes you have just made. If you do not save the entry to disk, all your changes will be lost.

Revising the Modem Command

The modem dialing command, and its suffix, are settable in the Modem SetUp section of the SetUp command.

Adding or Revising Long Distance Codes

Long distance codes are used primarily for accessing alternate long-distance services. Four such codes are provided, identified by the characters "-", "+", "@" and "#". Enter "P" at the dialing directory "==>" prompt to display a window containing the current long distance code definitions. Press any key to remove this window from the screen.

To revise a long distance code, enter the "R" command. Now enter the long distance code id character at the "Entry to revise" prompt. The current string for that long distance code will be displayed, and you will be asked for the new value. Control characters and carriage returns may be included in long distance codes by using translation conventions described earlier. Press <CR> to complete the long distance code revision. Pressing <CR> as the first character in the new string deletes that long distance code. If you do not save the changes to disk, they will be in effect for the current session only. Press <ESC> to abandon long distance code changes completely.

Long distance codes are used to provide access to alternate long distance carriers, to dial through office PBX or switchboard equipment, or for similar uses. Long distance codes may precede or follow the number in the dialing directory entry. For example, say you wish to call some long distance number using your Sprint account. Begin by setting up a long distance code. Choose "R" to revise, then select the ld code to change (We'll use "#"). Set the "#" ld code to "123-4567,,,99999," where "123-4567" is your local Sprint telephone number, and "99999" is your Sprint account ID (or password). To dial an entry, say number 14, using Sprint, enter "#14" at the "==>" prompt. This is what happens: the modem will dial the local Sprint number, wait six seconds (the comma is a Hayes modem command convention for a two second delay) then enter your Sprint access code. It then waits another 2 seconds (the final comma) then dials whatever happens to be specified in entry number 14. Similar tasks can be performed using different ld codes. And remember, each code may be placed either before (i.e. "#14"), after (i.e. "14#") or both before and after the entry to be dialed.

Deleting Entries

You can use the 'D' command to delete entries from your dialing directory. A window will open and prompt you for a range of entries to delete. Enter the starting and ending entry numbers for the range you

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wish to delete. Leave the second field blank to delete a single entry.

For example, to delete entries 15-25, enter "15" in the first space and "25" in the second. After verification, those 11 entries will be deleted. To delete just entry 37, enter "37" in the first space, and press <CR> in the second. You'll be asked to verify that you actually want the entries deleted before any action is taken.

Making a Call

To dial an entry in your dialing directory, simply type the entry number (1-100) at the "==>" prompt. To dial with a long distance code, place the code's identifier before and/or after the entry number. For example, enter "14" to dial entry number 14. Enter "#14" to dial entry number 14 preceded by the long distance code identified by "#". Enter "14+" to dial entry number 14 followed by the '+' long distance code. ProComm will send the modem command, an optional long distance prefix, the number, an optional long distance code, and finally the modem command suffix to the modem. All five parts of the dialing string are translated using the conventions described earlier under string translation (see Section 2). The parameters for the dialed entry become the current settings and remain after the call is complete.

If a command file is linked to the entry being dialed, the redial facility will be used to place the call. When a connection is made, control is passed to the linked command file. Command files can be very useful for setting up custom terminal configurations, performing automatic logons, loading specific keyboard macro files and many other functions.

Manual Dialing

To dial a number not in your directory, enter the manual dialing command ("M") at the "==>" prompt. Then enter the telephone number you wish to dial. ProComm will send the dialing command plus the string you entered, plus the modem command suffix. A long distance code indicator may be used if it is the first and/or last character in the string (that is, you can enter "+212-555-1552", "212-555-1552#" or "+212-555-1552#").

Printing the Directory

ProComm lets you output your directory to a printer, disk file or any DOS device. Type "L" at the "==>" prompt, then specify where to send the file. Simply press <CR> to use the default of PRN. You can even output the directory to the COM port you are using and send a listing of your directory to the remote computer.

Automatic Redial with Circular Dialing Queue

Some remote systems can be very hard to reach. ProComm makes it easier to access hard-to-reach systems with its automatic redial feature. Press Alt-R to invoke the redial procedure. When the redial window opens, specify one or more dialing directory entries separated by blanks, commas or semicolons. Entries may contain long distance codes. ProComm will

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continuously redial the numbers in the list until you are connected. Pressing <CR> without specifying any entries will cause ProComm to dial the numbers that were in the list the last time it was used.

If the redial time is exceeded, or ProComm senses one of the modem's no connect strings (specified in the SetUp screen), the program will automatically move to the next number in the list. As each number is reached, it is removed from the circular queue. To remove an entry that is being called from the list without first connecting, press the Del key while that number is being dialed. You can also press the Space key to abort the current call and proceed to the next entry in the list.

Set the length of time ProComm waits for some response by pressing the End key; specify the new time to wait (from 5 to 100 seconds) and press <CR>. If you want this change to become permanent, respond "Y" to the "save to disk?" prompt. Be certain, however, that the your modem's delay timeout is set at least as high as the wait time you specify here; otherwise, the modem will timeout and disconnect before the redial wait time is reached. You can specify the redial timeout delay in the SetUp (Alt-S) screen as well as at the redial function.

Between calls ProComm will delay for the amount of time specified by the modem pause delay parameter (see Section 3). This delay is provided to allow the modem sufficient time to reset between calls. To continue immediately with the next call, press the Space key.

The alarm will sound when you connect during a redial. If a command file is linked to the entry that has connected, program control will pass to the linked command file. Command returns to you when that command file has finished its tasks.

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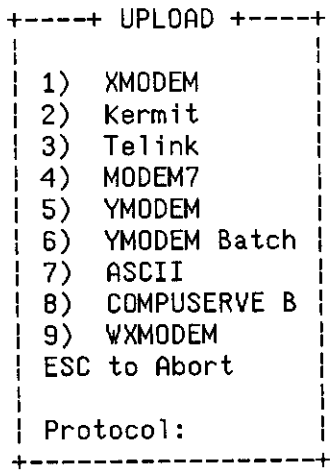
6. F I L E T R A N S F E R

The ability to transfer information makes a communications program a very powerful tool. ProComm gives you several choices for two-way information transfer via file transfer protocols. With them you can upload (send) and download (receive) files from almost any system.

Uploading Files

Begin a file upload to another system by starting the transfer on the remote computer. When the remote indicates that it is ready, press PgUp. You will be presented with a menu of protocol choices:



Enter the number of the protocol you wish to use. A second window will prompt you for the name of the file to upload. Enter the filename, including a path if you wish, then press <CR>. Another window will open and report on the progress of the transfer.

An ASCII upload is something of a special case. No transfer progress window will be displayed, but the status line will indicate that an ASCII transfer is taking place. ASCII uploads are under the control of several setup options. The first set of options control pacing. You can set ProComm to pause after it sends each line of text or after each character to avoid overflowing the receiver. You may also set ProComm to wait to receive a specific character before sending the next line. Another option allows you to specify if text is to be echoed locally. In most cases you will want to let the remote do any echoing of transferred text. Still other options determine whether carriage returns or linefeeds should be stripped or translated from the outgoing file.

Downloading Files

Downloading files is just as easy. After starting the download procedure

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on the remote, press PgDn. The protocol selection window is again displayed (but this time headed "DOWNLOAD"). Enter the number of the protocol you wish to use. If a Default Download Path has been specified in the General SetUp area, downloaded files will be placed in the specified directory. Otherwise they will be placed in the currently logged drive and directory.

If you select ASCII, XMODEM or YMODEM protocol, a window will open and you will be prompted for the filename. In all other cases the filename is provided by the sender and you do not need to enter it locally. If you enter the name of a file that already exists you will be asked if it should be overwritten. If a filename provided by the sender already exists, the received file will be renamed by placing a dollar sign in the first position of the filename. For example, if you select to download FILE1.EXE using the Telink protocol and that file already exists, the downloaded file will be named $ILE1.EXE.

After you have specified the protocol and (possibly) the file name, a window will open which displays information regarding the transfer. When the transfer is complete, or an abort is sensed, the alarm will sound and appropriate messages will be displayed.

ASCII downloads are somewhat different from the others in two respects. First, no transfer status window is displayed. A message on the status line indicates that an ASCII download is in effect. Second, ASCII downloads need user intervention to complete. Text will continue to be captured until you press <ESC> to terminate the transfer.

There is, however, a large degree of control over various ASCII file transfer parameters. These can be set from the SetUp screen (Alt-S). You can conform CR and LF translation in a number of ways, allowing transfer to or from almost any system.

File Transfer Protocols

There are nine file transfer protocols available in ProComm:

ASCII

ASCII file transfer is the equivalent of typing information from one system to another. The ASCII characters are sent in a one-way stream with no handshaking (other than XON/XOFF, if it is activated) or error checking performed. This method is fine for some applications, but you are limited to text file transfer.

One difference between an ASCII download and file logging is that all data (including terminal escape sequences) is captured, while during logging terminal control sequences (with the exception of formfeeds) are filtered out.

ProComm provides a number of ASCII file transfer settings which allow you to transfer data to or from most any system. These options are settable via the ASCII Transfer SetUp section of the SetUp facility.

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XMODEM File Transfer

XMODEM is a block-oriented error checking protocol released into the public domain by its creator, Ward Christensen. It is very popular on electronic bulletin board systems. XMODEM transfers only a single file at a time. The protocol uses two-way communications and either a checksum or cyclic redundancy check for error checking. XMODEM can handle text or executable files with over 99% accuracy. ProComm supports and automatically adjusts for both the checksum and CRC variants.

The XMODEM protocol is defined such that CRC checking is always attempted first. If CRC is not acknowledged by the sender then the checksum method is used. While ProComm correctly implements this system, however, some other systems do not. As a result, a problem can arise if the remote system responds to the CRC attempt but uses checksums.

Note that XMODEM requires transfers to be performed with 8 data bits, 1 stop bit and no parity. If you attempt to begin an XMODEM transfer while set to other parameters, ProComm will automatically switch to N/8/1, returning you to your original parameters when the transfer is complete.

Some systems, such as CompuServe, have trouble meeting the standard XMODEM timing sequences. You may set ProComm's XMODEM facility into a "relaxed" mode, which has less critical timing, using the SetUp (Alt-S) screen. Most other systems, however, will work fine with XMODEM set to normal.

MODEM7 File Transfers

MODEM7 is a variant of the XMODEM protocol. By sending the filename, batch transfers (multiple files) can be accomplished. CRC and checksum are supported.

YMODEM File Transfers

YMODEM is another XMODEM variant. Its main advantage is that it supports longer data blocks (1K) and thus speeds transfer times. ProComm supports YMODEM for single file transfers and YMODEM Batch for multiple file transfers. YMODEM Batch also provides some header information, such as filename and filesize. YMODEM file transfers are always performed with CRC error checking.

Telink File Transfers

Telink is yet another XMODEM/MODEM7 variant which adds file size and creation date information. It is found mainly on FIDO bulletin board systems, and provides for batch file transfers.

Kermit File Transfer

Kermit is a packet-oriented protocol developed at Columbia University and is available on many different computer systems. By using a technique called 8th-bit quoting, Kermit is able to transfer binary files between 7 and 8 bit systems. In some implementations, such as ProComm, Kermit

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supports multiple file transfers.

ProComm's implementation of Kermit includes all of the latest Kermit enhancements, including data compression, file attributes, and sliding windows.

The most significant of these features is sliding windows. A "sliding window" protocol is a full duplex protocol that can transmit and receive data at the same time. The XMODEM family of protocols are half duplex protocols. They must wait between each block of data for a reply from the other side. XMODEM wastes quite a bit of time this way. Full duplex protocols can send a continuous stream of data while receiving replies at the same time, thus greatly increasing file transfer efficiency. ProComm Kermit will automatically sense if the other Kermit supports sliding windows and will use them if it does. Currently, Sliding Window Kermit is available on The Source, TCOMM BBS, and PC-HOST BBS. Mainframe versions are under development and should be appearing soon. ProComm Kermit is backward-compatible with earlier versions of Kermit.

ProComm's default Kermit settings are fairly standard and should need to be changed only under special conditions. Because of the sliding window enhancement, block size should be limited to a maximum of 90, rather than 94 as in standard Kermit.

In addition, a few Kermit server commands are supported. Press Alt-K to access the Kermit server command menu. Available commands include Finish, Logout, Send and Get. Get (option 1) and Send (option 2) will both prompt you for the appropriate filename and then perform the indicated function, i.e. either GET (receive) or SEND (transmit) a file. Finish (option 3) will terminate the Kermit session and return you to the system level. Logout (option 4) will terminate Kermit and log you off the remote. These commands are effective only when the remote Kermit is operating in server mode.

More information on Kermit is available from Columbia University. Send $5 each for the Protocol or User manual to:

Kermit Distribution
Columbia University Center for Computing Activities
7th floor, Watson Laboratories
612 West 115th Street
New York, NY 10025

CompuServe B File Transfers

The CompuServe B protocol is available on the CompuServe Information Service. It may be used with ProComm in two ways. You may select it from the Upload or Download selection windows like any other protocol. You may also operate it in an automatic mode. To do so, set the ENQ parameter in the Terminal SetUp section to CIS B. This activates the automatic capabilities of ProComm to handle CompuServe B file transfers. All you need do at that point is instruct CIS to begin a transfer, and let the software do the rest. Be sure not to set ENQ to CIS B unless you are connecting to CompuServe or strange results may occur.

WXMODEM File Transfers

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WXMODEM, another variant of the XMODEM protocol, is used primarily on the PeopleLink online service; it provides a sliding window protocol, similar to that discussed under "Kermit File Transfer", above.

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7. COMMAND FILES

Command files are text files you create that contain ProComm commands. You can use command files to perform automatic logons, perform unattended file transfers and many other tasks. You can even link command files to the entries in your dialing directory so that the entire dialing and logon procedure is automated.

You can create a command file using virtually any word processor which saves in straight ASCII format; if your word processor normally makes use of special or extended ASCII characters, then you should use its "non-document" mode. A command file may have any valid filename; however, ProComm looks for files with an extension of .CMD when it lists available command files.

Command files can be executed from within ProComm or as a command line option when you first invoke the program. If you specify them on the command line, using the "/F" option, they will be executed immediately upon program startup. Execute them from inside the program by pressing Alt-F5. ProComm first searches the current directory for files with the .CMD extension. If any are found, their names are displayed in the window. If none are found, ProComm will look in the directory pointed to by the ProComm environment variable. Again, the names of any files found are displayed in the window. If no files are found in either directory, the message "NO FILES" will be displayed.

To execute a command file you may either type the filename or choose from the scrolling window display of available .CMD files. If you type the filename, you may omit the .CMD extension. To choose from the scrolling window, position the highlight on the name of the file you wish to execute and press <CR>. PgUp and PgDn will scroll the window one page in either direction. The arrow keys will scroll the window one entry in either direction. Pressing the Home key will position the list at the first page of available command files; pressing End will position it at the last. If you don't see the highlighted entry, use the Alt-Z command to change the color being used for highlighting so that it is different than that being used for regular foreground display. The command file window uses the colors displayed in Alt-Z for the file transfer window.

Once you begin to enter a command file name at the prompt you may still scroll the window, but you may not select a file for execution from the scrolling display.

Abort a command file by pressing <ESC> during its execution. The command file will abort when the current command has completed (which might take a few seconds). In some cases, such as while dialing or performing a file transfer, two <ESC>'s are needed: one to abort the task in progress and a second to abort the command file.

There is a special command file named PROFILE.CMD which ProComm looks for in the default directory first, then in the directory pointed to by the

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```
This_is_a_long_label:
JUMP1:
split:
GO_HERE:
```

Labels must appear on a line by themselves. (Comments are allowed on label lines; executable statements are not). Labels may be of any length; however, only the first 8 characters are used by the interpreter. Thus LABEL_TAG1: and LABEL_TAG2 are the same as far as ProComm is concerned.

Comments begin with a semi-colon (;). Any text following a semi-colon is treated as comment text. Below are valid comments:

```
; This is a comment.
LABEL7:                    ;This is a comment on a label line
TRANSMIT "Welcome back"    ;And this is a comment as well
```

There are 10 string variables, named S0-S9, which may be set and used in place of quoted strings. They have a maximum length of 80 characters each. They may be set by the ASSIGN, GET and RGET commands. String variables may be used in place of a quoted string in any of the commands marked below with the @ character. For example, the commands

```
ASSIGN S5 "Hello, Mike Todd here"
TRANSMIT S5
```

and

```
TRANSMIT "Hello, Mike Todd here"
```

are functionally the same. One of the most useful applications of string variables is in obtaining and using user responses. Consider the commands below:

```
MESSAGE "Enter the name of the file to upload:"
GET S4
SENDFILE XMODEM S4
```

String variables are also a very handy method for passing values between command files. When you chain from command file to command file, using the EXECUTE command, string variable contents are not reset. Thus you may set a variable in one command file, and act on the variable in another.

ProComm allows the nesting of commands such as IF, SWITCH and GOSUB. Nesting, however, is limited to 10 levels.

Characters that are received from a remote system are stored in the receive buffer. During command file execution, the receive buffer is emptied before each command is executed, with the exceptions noted below. What this means is that before each command is performed, all the characters that have come in are displayed on the screen and are therefore not available to be processed by later commands. The exceptions are the GET, RGET and WAITFOR commands, as well as labels and comments. In these cases the buffer is not emptied, allowing the command to process the accumulated characters. The point here is that if you have a command sequence that looks like

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```
TRANSMIT "password!"
PAUSE 5
SET DUPLEX HALF
WAITFOR "target"
```

the text you are looking for may come in and be processed before the WAITFOR command has a chance to see it. A better solution would be to change duplex at some other point, and let the WAITFOR command do the extra pausing:

```
SET DUPLEX HALF
TRANSMIT "password!"
WAITFOR "target" 35          ; 30 seconds is the default pause
```

Use the commands described below to perform your specific task. Be sure to test your command files thoroughly before using them for unattended communications.

The following notations apply to the commands listed below: Commands marked with an asterisk (*) may be tested with the IF command. Commands marked with an at-sign (@) indicate where string variables may be used in place of quoted strings. Sx indicates that you should use one of the string variables. Ellipses (...) mean that you may place a number of command lines in that spot.

Top Level Commands

ALARM [seconds]

The ALARM command will sound an alarm to alert you to some event. Use the [seconds] option to determine the amount of time the alarm will sound. If the [seconds] option is not specified ProComm will use the Alarm Time specified in the General SetUp screen. This command is also under control of the Alarm Sound setting. Both Alarm Sound and Alarm Time may be regulated using the SET command described below.

```
Example:   ALARM 5             ; sounds the alarm for 5 seconds
```

ASSIGN Sx "string" @

This command assigns the contents of "string" to a user variable. Use ASSIGN to set a user variable from within your command file.

```
Examples:  ASSIGN S5 "12345"   ; set S5 to contain the string '12345'
           ASSIGN S6 S5        ; sets S6 to be the same as S5
```

BREAK [time]

The BREAK command is used to send a break to the remote system. The optional [time] argument determines the length of the break in milliseconds. If [time] is not specified, ProComm will use the default as indicated by the Break Length option in the Terminal SetUp screen.

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```
Examples:  BREAK              ; send a break using the default timing

           BREAK 500          ; send a 500 millisecond break
```

CHDIR "drive and/or directory" @

The CHDIR command will change the logged directory and/or drive.

```
Examples:  CHDIR "A:"         ; change the logged drive to A:

           CHDIR "C:\COMM"    ; change to \COMM dir on drive C:

           CHDIR "\COMM"      ; change logged dir to \COMM
```

CLEAR [bg fg]

The CLEAR command is used to clear the top 24 lines of your screen. The optional parameter [bg fg] (you must use both codes) allows you to change your background (bg) and foreground (fg) colors. If the [bg fg] option is not used, the screen will be cleared to the current colors. If the [bg fg] option is used, ProComm will clear the screen to the new colors as well as reset the current colors to those specified. The codes to use for colors are as follows:

0 Black	8 Dk Grey	(8-15 are the bright
1 Blue	9 Lt Blue	colors)
2 Green	10 Lt Green	
3 Cyan	11 Lt Cyan	
4 Red	12 Lt Red	
5 Magenta	13 Lt Magenta	
6 Brown	14 Yellow	
7 Lt Grey	15 White	

Only the codes 0-7 are valid for background colors; any of the sixteen colors may be used for the foreground.

```
Examples:  CLEAR 0 10         ; clear screen to lt green on black

           CLEAR              ; clear screen to current colors
```

DIAL "entry" @

The DIAL command is used to call an entry in your dialing directory. Specify the number of the entry, optionally preceded and/or followed by a long distance code identifier as the argument.

```
Examples:  DIAL "5"           ; call entry number 5

           DIAL "#5"          ; call entry 5 using ld code '#'
```

If a second command file is linked via the dialing directory to the entry being dialed, the linked command file will not be executed. Place all statements to be executed in the command file which initiates the call.

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Use the IF LINKED command to avoid secondary dialing in command files linked to dialing directory entries. For example, including the commands

```
IF NOT LINKED          ; do not execute the dial command if
     DIAL "5"          ; this file is executing via linkage
ENDIF                  ; to a dialing directory entry
```

in a command file linked to entry number 5 allows you to use that command file both as a stand alone file and linked to the dialing directory entry.

This command uses the auto redial facility to place its calls; it will keep re-dialing until a connection is made. To make a call without using auto redial, use the TRANSMIT command.

```
Examples:  TRANSMIT "ATDT1 314 449-9401!"     ; place the call
           PAUSE 10                           ; wait 10 seconds
           IF CONNECTED
                ...                           ; do these commands if
           ENDIF                              ; connected
```

Remember, if you sort your dialing directory you will need to change your command files so the entry numbers match.

DOS "command" [WAIT] @ *

The DOS command allows you to execute DOS commands or other programs from within a ProComm .CMD file. Enter the "command" as it would appear on the DOS command line. For example, to go out to DOS and type a file named FILE.EXT to your printer use the command:

```
DOS "type FILE.EXT > prn"
```

If the optional argument WAIT is included, ProComm will wait for a keystroke after executing the command, before returning to ProComm.

To execute this command properly you must make sure of two things. First, you must have enough memory to run the "command". Secondly, COMMAND.COM must be where ProComm can find it. (Either in the boot location or wherever COMSPEC is pointing). While this command returns an error status checkable with the IF command, the error check is very limited. The DOS command will indicate FAILURE only if COMMAND.COM was not found. IF COMMAND.COM was found, even if the command to be executed was invalid, SUCCESS will be returned.

```
Examples:  DOS "del FILE.EXT"          ; delete a file

           DOS "sortdisk"              ; run a program called sortdisk
           IF FAILURE
                MESSAGE "COMMAND.COM not found"
           ENDIF
```

CAUTION: If you execute a program or command requiring user input be sure you are around to provide it, since the program will wait until you do.

EMULATE terminal -or- EMULATE "terminal"

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The EMULATE command changes the active emulation to that specified. Valid terminal types are: VT100, VT52, IBM3101, TV920, TV950, ADM5, HEATH19, ANSI, ADDSVP and WYSE100.

```
Examples:  EMULATE VT100        ; change emulation to VT100

           EMULATE "IBM3101"    ; emulate the 3101
```

EXECUTE "cmd file" @

The EXECUTE command allows you to begin execution of a different command file. The currently executing command file will be ended and will not be returned to. The EXECUTE commands allows a one-way chaining of command file execution. The file extension of .CMD need not be specified.

Remember, string variables are not reset when chaining command files so you may use them to pass values. String variables are reset to null, however, when you begin the first command in the chain.

```
Examples:  EXECUTE "CALL_KEN.CMD"        ; execute CALL_KEN.CMD

           GET S0                        ; get the option
           SWITCH S0                     ; switch based on option
                CASE "A"
                     ASSIGN S1 "CHOICEA.CMD"
                ENDCASE
                CASE "B"
                     ASSIGN S1 "CHOICEB.CMD"
                ENDCASE
                DEFAULT
                     ASSIGN S1 "DEFAULT.CMD"
                ENDCASE
           ENDSWITCH
           EXECUTE S1
```

EXIT

The EXIT command terminates the executing command file and returns you to Terminal Mode.

```
Examples:  TRANSMIT "Goodbye"       ; log off remote
           HANGUP                   ; hangup phone
           EXIT                     ; return to Terminal Mode
```

FIND Sx "target" @ *

The FIND command looks for an occurrence of the "target" string in the string variable Sx. Test for an occurrence of "target" within Sx using the IF FOUND command. The FIND command is not case sensitive.

```
Examples:  MESSAGE "Enter the password:"      ; prompt
           MGET S0                            ; get with mask
           FIND S0 "password"                 ; look for password
           IF NOT FOUND                       ; found ?
```

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To perform a download you must first initiate the transfer on the remote. When that system indicates that it is ready, begin your transfer.

Note that 4 protocols require you to specify the filename to receive; for the other protocols, the filename is provided by the sending system. All transfers may be checked for successful completion using the IF SUCCESS/FAILURE command.

```
Examples:  WAITFOR "Begin your transfer now"  ; wait till it's ready
           GETFILE XMODEM "FILE.EXT"          ; receive FILE.EXT

           WAITFOR "Kermit-32>"               ; wait for prompt
           MESSAGE "Enter file to transfer"   ; transfer a file with
GET S1                                ; Kermit
           TRANSMIT "SEND "                   ; send transfer command
           TRANSMIT S1                        ; the file name
           TRANSMIT "^M"                      ; and a CR
           GETFILE KERMIT                     ; now get it
```

GOSUB label

The GOSUB command provides for an unconditional branch with return. Upon encountering a GOSUB command, the interpreter searches the command file for the label specified. If the label is found, execution will continue with the command immediately following the label. If the label is not found, the command file will terminate with an "Unexpected end of file" error.

After successfully branching to the specified label, execution will continue until a RETURN command is found, at which point ProComm will jump back to the point at which the GOSUB was called. Execution resumes at the command immediately following the GOSUB. Each GOSUB must have its associated RETURN.

GOSUBs may be nested to a depth of 10 levels. If the end of the command file is encountered within a GOSUB, an "Unexpected end of file" error will occur. If you attempt to nest more than 10 GOSUB calls, a "Stack overflow" error will result. Likewise, if you attempt to RETURN without having a corresponding GOSUB, a "Stack underflow" error will occur.

```
Examples:  SWITCH S0              ; switch based on the contents of S0
                CASE "ABC"
                     GOSUB LABEL1
                ENDCASE
                CASE "ZXY"
                     GOSUB LABEL2
                ENDCASE
                DEFAULT
                     GOSUB ERROR1
                ENDCASE
           ENDSWITCH
                ...

                                  ; Subroutine area

           LABEL1:
                ...
```

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```
          RETURN

          LABEL2:
               ...
          RETURN

          ERROR1:
               ...
          RETURN
```

GOTO label

The GOTO command performs an unconditional branch to the indicated label. Upon encountering a GOTO command, the interpreter searches the command file for the label specified. If the label is found, execution will continue with the command immediately following the label. If the label is not found, the command file will terminate with an "Unexpected end of file" error. Remember, only the first 8 characters of a label are actually used. If two identical labels exists, ProComm will branch to the one closest to the beginning of the file.

GOTOs may not be used to jump into the middle of IF or SWITCH statements, although they may be used to branch out of those constructs. They should also not be used to branch into or out of subroutines (code segments designed to be used with the GOSUB command), although they may be used within the boundaries of individual subroutines. Use of a GOTO in these situations will result in unexpected and usually erroneous execution.

Examples:
```
IF NOT WAITFOR
     GOTO ERROR_EXIT          ; this is OK
ENDIF
   ...
ERROR_EXIT:
     MESSAGE "Abnormal termination"
     HANGUP
     QUIT

GOTO LABEL1                   ; this is not OK
SWITCH S0
     CASE "xyz"
     LABEL1:
     etc.
```

HANGUP *

The HANGUP command attempts to disconnect the phone in the manner described for the Alt-H command in Section 3. Use the IF CONNECTED command to determine if you successfully disconnected.

Example:
```
HANGUP              ; disconnect the phone
```

HOST

The HOST command is used to put ProComm into Host Mode.

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```
Example:   HOST          ; enter host mode
```

IF condition

The IF command is used to make decisions. The syntax of the IF statement is

```
IF condition
     [part 1]
ELSE
     [part 2]
ENDIF
```

where the ELSE part is optional. The condition is evaluated; if it is true, [part 1] is executed. If it is false, and there is an ELSE, [part 2] is executed. There must be an ENDIF for every IF. IF commands may be nested up to 10 levels deep.

Valid conditions for the IF command are

```
SUCCESS        CONNECTED      FOUND
FAILURE        LINKED         WAITFOR
```

The SUCCESS condition is evaluated as true if the last checkable command was successfully executed. A "checkable" command is a command file command that sets one of the condition flags. Checkable commands are indicated in this chapter by having an asterisk (*) after the command name. For example:

```
RUN "someprog"
IF SUCCESS
     ...           ; this segment will execute if "someprog" ran.
ENDIF
```

The FAILURE condition is considered true if the last checkable command was not successfully completed. For example, if you had an RGET command that timed out, FAILURE would be considered true:

```
RGET S9 80 5
IF FAILURE
     ...           ; this segment will execute if RGET times out.
ENDIF
```

The CONNECTED condition is true if CD (Carrier Detect) is found to be high. CD is high when you are connected to a remote system, or if your modem is forcing the CD lead high. WARNING: be sure that your modem does not force CD high (usually a dip switch setting) or the CONNECTED condition will always be true.

```
IF CONNECTED
     ...           ; perform this segment if you are connected
ENDIF
```

The LINKED condition is considered true if the command file that is executing was started because it was linked to an entry in the dialing directory. In other words, if you have a command file called VAX.CMD which is linked to dialing directory entry number 5, and you call entry number 5 and are connected, and VAX.CMD begins execution, an IF command

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that looks like

```
IF LINKED
     ...
ENDIF
```

will be considered true. The primary use for the LINKED condition is so you can write one command file and use it both stand alone and linked to dialing directory entries.

```
IF NOT LINKED
     DIAL 5
ENDIF
```

In this code segment, the DIAL command will be executed only if the command file was not executed because of a dialing directory link. (More on the NOT option below).

The FOUND condition is used to test the result of the last FIND command executed. It is considered true if the "target" was found in the specified string variable. For example, in the sequence

```
ASSIGN S9 "ABCDEFG"
FIND S9 "CDE"
IF FOUND
     ...
ENDIF
```

the commands denoted by ellipses (...) would be executed, as the FOUND condition would be true.

The WAITFOR condition is used to check the result of the last WAITFOR command. If the "target" specified in the WAITFOR command was received, the WAITFOR condition would be true. If the WAITFOR command timed out before receiving the "target", the condition would be false.

```
WAITFOR "ABCDEFG" 15     ; wait 15 seconds for 'ABCDEFG'
IF WAITFOR
     ...                 ; execute if 'ABCDEFG' was received
ELSE
     ...                 ; execute if timed out
ENDIF
```

The NOT operative may be employed with any of the conditionals. The effect of the NOT is to reverse the value of the condition. For example, if CONNECTED is false, then NOT CONNECTED would be true. The conditions NOT SUCCESS and FAILED are exactly the same. The code segments

```
IF FOUND                 IF NOT FOUND
     [part 1]                 [part 2]
ELSE                     ELSE
     [part 2]                 [part 1]
ENDIF                    ENDIF
```

will result in identical execution.

```
Examples:  IF NOT CONNECTED
                ...              ; do this if no connection
```

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```
ENDIF

WAITFOR "Something"
IF WAITFOR
     ...                    ; do this if it was found
ELSE
     ...                    ; else do this
ENDIF

SEND_IT:
SENDFILE KERMIT "FILE.EXT"
IF NOT SUCCESS
     MESSAGE "Error in file transfer.  Retrying..."
     GOTO SEND_IT
ENDIF

; How to redial without using Alt-R

DOIT:
TRANSMIT "ATDT123-4567"
WAITFOR "CONNECT" 20
IF NOT WAITFOR
     MESSAGE "No connect.  Redialing..."
     GOTO DOIT
ENDIF
```

ISFILE "filename" @ *

The ISFILE command is used to determine if a specific file exists in the current directory. Use the IF SUCCESS/FAILURE command to test the results of the ISFILE command.

Examples:

```
ISFILE "procomm.doc"
IF SUCCESS
     MESSAGE "Doc file exists"
ELSE
     MESSAGE "Doc file not found"
ENDIF

MESSAGE "Enter filename"
GET S0
ISFILE S0
IF NOT SUCCESS
     MESSAGE "File does not exist"
ENDIF
```

KERMSERVE

```
SENDFILE "filename"        @ *
GETFILE "filename"         @ *
FINISH
LOGOUT
```

The KERMSERVE command may be used to issue a Kermit server command. The available commands are listed above.

Examples:

```
MESSAGE "File to send?"  ; prompt for filename
```

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```
GET S0                    ; get filename
KERMSERVE SENDFILE S0     ; send file
KERMSERVE FINISH          ; issue the FINISH server command
```

KFLUSH

The KFLUSH command is used to clear any accumulated keystrokes from the keyboard buffer. Any keystrokes that have been entered, but not processed, will be lost.

```
Examples:  KFLUSH                 ; clear keyboard buffer
```

LOCATE row col

The LOCATE command positions the cursor to the location specified by row and col (column). Rows are numbered 0-24, columns 0-79, with 0,0 (row 0, col 0) being the upper left corner of the screen.

```
Examples:  CLEAR                  ; clear the screen
           LOCATE 10 20           ; position cursor
           MESSAGE "ENTER CHOICE:"
           LOCATE 10 44           ; position at end of line
           GET S8
```

LOG
    OPEN ["filename"] @ *
    CLOSE
    SUSPEND
    RESUME

The LOG command controls file logging during command file execution. Use the OPEN command to start logging data to disk. If "filename" is not present, the Default Log File as specified in the General SetUp section will be used. Use the CLOSE command to turn off file logging. The SUSPEND command will stop text from being logged temporarily without closing the log file. Use the RESUME command to continue logging after a SUSPEND command.

```
Examples:  LOG OPEN               ; use default log name
             ...
           LOG SUSPEND            ; put log on hold
             ...
           LOG RESUME             ; resume logging
             ...
           LOG CLOSE              ; close log
```

MACRO number -or- MACRO "number" @

The MACRO command will send the string currently assigned to any of the macro keys (Alt-0 through Alt-9). Use the MLOAD command to load individual keyboard macro definition files.

```
Examples:  MACRO 5                ; send macro assigned to Alt-5
```

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```
ASSIGN S8 "2"
MACRO S8            ; send macro assigned to Alt-2
```

MESSAGE "string" @

The MESSAGE command displays a string on the local console. The text is not sent to the remote. The message is displayed at the current cursor position, in the current colors. MESSAGE will always do a CR/LF after each string. The "string" may contain control characters such as CR and LF by using the translation conventions described in Section 2. Use the MESSAGE command for prompts, informational messages, building menus, etc.

Examples:
```
MESSAGE "+----------------------+"
MESSAGE "| Enter your choice:  |"
MESSAGE "+----------------------+"
LOCATE 2,20
GET S0 1
SWITCH S0
  etc.

ASSIGN S9 "This is the first line^M^JThis is the second"
MESSAGE S9
```

MLOAD "filename" @

The MLOAD command is used to load a keyboard macro file.

Example:
```
MLOAD "SYSTEM1.KEY"      ; load a new macro file
```

PAUSE seconds -or- PAUSE "seconds"

The PAUSE command halts command file execution for the specified number of seconds. Characters received during a pause are not displayed until after the pause has completed.

Examples:
```
TRANSMIT "Kermit send file.ext"    ; start the transfer
PAUSE 3                            ; let the remote start
KERMIT RECEIVE                     ; receive the file
```

PRINTER
```
        ON
        OFF
```

The PRINTER command is use to control print logging. Use the ON argument to begin logging the session to the printer; use OFF to end logging. ProComm writes the printer log to the DOS device PRN. You can use the MODE command in DOS to redirect printer output.

Examples:
```
PRINTER ON          ; begin print logging
  ...
PRINTER OFF         ; end print logging
```

QUIT

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The QUIT command terminates the executing command file and exits ProComm as well. Use it only to shut down the entire program.

```
Examples:  TRANSMIT "Logoff"          ; log off remote
           HANGUP                     ; hangup the phone
           QUIT                       ; close down ProComm
```

RFLUSH

The RFLUSH command is used to clear the input buffer. Any characters that have been received, but not yet displayed, will be lost when this command is issued. It is generally used to clear the input buffer in preparation for some task.

```
Example:   RFLUSH              ; clear the input buffer
```

RGET Sx [length] [delay] *

The RGET command provides services similar to those of the GET command; however, input is taken from the remote computer rather than from the keyboard. The RGET command will complete when a <CR> is received or [length] characters have been received. Unlike with the GET command, a <CR> is not required if [length] characters have been received. Use the [delay] argument to specify the maximum number of seconds to wait for the string to be received before timing out. If [delay] seconds have elapsed without receiving a <CR> or [length] characters, the RGET command will timeout and execution will continue. You can determine if the command timed out using the IF SUCCESS/FAILED command. You must specify [length] if you wish to specify [delay]. If length is not specified, the maximum of 80 characters is used; if [delay] is not specified, the default of 30 seconds is used.

```
Examples:  TRANSMIT "ATS0=1^M"       ; go into auto answer
           WAIT_IT_OUT:
           IF NOT CONNECTED          ; wait for a connection
                GOTO WAIT_IT_OUT
           ENDIF
           TRANSMIT "ENTER PASSWORD:"
           RGET S9 8 45              ; wait 45 seconds max
           IF FAILED                 ; timed out
                TRANSMIT "Times up.  Goodbye"
                HANGUP
                GOTO WAIT_IT_OUT
           ENDIF
           FIND S9 "secret"
           IF NOT FOUND
                TRANSMIT "Sorry , but you're not authorized."
                HANGUP
                GOTO WAIT_IT_OUT
           ENDIF
```

RUN "program" [WAIT] @ *

The RUN command is similar to the DOS command except that it cannot

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execute internal DOS commands. See the explanation of the DOS command for conditions necessary for the correct execution of this command. A major difference between the DOS and the RUN commands is the error codes returned. RUN will report any non-zero return code from the "program" as FAILURE; only "programs" exiting with a return code of zero will indicate SUCCESS.

If the optional argument WAIT is included, ProComm will wait for a keystroke after executing the program, before returning to ProComm.

```
Examples:  RUN "filesort"      ; execute a program called filesort

           ASSIGN S0 "filesort"
           RUN S0
           IF FAILURE
                MESSAGE "filesort returned error"
           ELSE
                MESSAGE "filesort executed successfully"
           ENDIF
```

```
SENDFILE
        KERMIT "filename"        @ *
        RXMODEM "filename"       @ *     (Relaxed XMODEM)
        XMODEM "filename"        @ *
        YMODEM "filename"        @ *
        BYMODEM "filename"       @ *     (YMODEM Batch)
        TELINK "filename"        @ *
        MODEM7 "filename"        @ *
        ASCII "filename"         @ *
        CISB "filename"          @ *     (CompuServe B)
        WXMODEM "filename"        @ *     (Windowed XMODEM)
```

The SENDFILE command performs a file upload (send). Many different protocols are currently supported; see the section on file transfers for more information on each protocol.

To perform an upload you must first initiate the transfer on the remote. When that system indicates that it is ready, begin your transfer.

All 9 protocols require that you specify the filename to send. All transfers may be checked for successful completion using the IF SUCCESS/FAILURE command.

```
Examples:  WAITFOR "Begin your transfer now"  ; wait till it's ready
           SENDFILE XMODEM "FILE.EXT"         ; send FILE.EXT

           WAITFOR "Kermit-32>"               ; wait for prompt
           MESSAGE "Enter file to transfer"   ; transfer a file with
           GET S1                             ; Kermit
           TRANSMIT "RECEIVE"                 ; send transfer command
           TRANSMIT S1                        ; the file name
           TRANSMIT "^M"                      ; and a CR
           SENDFILE KERMIT S1                 ; now send it
```

SET ...

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The SET command is used to control various system parameters and options. It is fully described in the next section.

SNAPSHOT

The SNAPSHOT command performs a screen dump as described in Section 3.

Example: SNAPSHOT ; dump the screen contents to the .IMG file

SWITCH Sx

The SWITCH command provides special multi-way decision making. A SWITCH compares the value of a string variable against a number of constants and branches accordingly. The syntax of a SWITCH command is:

```
SWITCH S2                          ; switch based on S2
     CASE "target1"                ; if S2 = 'target1'
          ...                      ; do these commands
     ENDCASE                       ; until here
     CASE "target2"                ; any number of cases
          ...
     ENDCASE                       ; needed for each case
     DEFAULT                       ; if no previous case matches
          ...                      ; do these commands
     ENDCASE
ENDSWITCH                          ; ends the SWITCH
```

The string variable Sx contains some value, usually put there by a GET or RGET command. When a SWITCH command is found, ProComm begins looking for a CASE statement that contains a "target" which matches the string variable specified in the SWITCH. The match must be complete, although it is not case sensitive. Thus the values 'ABC', 'abc' or 'AbC' would all match a CASE 'abc' command, but the values 'ABCDE', 'XYZabc' or 'a b c' would not.

After finding a CASE that matches, ProComm will continue command file execution starting with the command immediately following the matching CASE. Execution continues until an ENDCASE command is found. At that point ProComm skips to the command immediately following the matching ENDSWITCH command and resumes execution. Note that each CASE statement must have a matching ENDCASE, and each SWITCH a matching ENDSWITCH.

There is a special case known as the DEFAULT case. The commands within the DEFAULT case will be executed if no previous CASE matched the string variable. The DEFAULT case is optional and need not be specified. If there is no DEFAULT case, and no other match is found, command file execution will continue with the statement following the ENDSWITCH command.

Another special case the _NULL case. The _NULL case will be executed if the string variable being switched on is null, i.e., has no value. For example, if a user enters a CR only in reply to a GET or RGET command, the string variable being gotten will be null. The _NULL case would then be triggered. The correct syntax for the _NULL case is:

```
CASE "_NULL"
```

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```
Examples:  (display some menu of options)
           GET_CHOICE:
           MESSAGE "Enter your choice"
           GET S5
           SWITCH S5                        ; switch based on S5
                CASE "A"                    ; if S5 = 'a' or 'A'
                     GOSUB CHOICEA          ; do this
                ENDCASE
                CASE "B"                    ; if S5 = 'b' or 'B'
                     GOSUB CHOICEB          ; do this
                ENDCASE
                CASE "_NULL"                ; do this if user pressed
                     GOSUB NULL_CASE        ; only CR
                ENDCASE
                DEFAULT                     ; S5 not = to 'A' or 'B' or NULL
                     MESSAGE "Invalid selection"
                     PAUSE 3
                     GOTO GET_CHOICE
                ENDCASE
           ENDSWITCH

           MESSAGE "Continue? (Yes/No)"     ; prompt
           GET S7                           ; get response
           SWITCH S7                        ; switch based on response
                CASE "NO"                   ; they said "no"
                     QUIT                   ; so leave
                ENDCASE
           ENDSWITCH
```

One use of a SWITCH command is to get a choice from the user, and then to perform various tasks depending upon the option selected. In the first example, the command file would begin by presenting some list of options. You could easily build a menu using the MESSAGE and LOCATE commands. The command file could then prompt the user for his selection, and GET the selection into a string variable, in this case S5. The command file will branch based on the user's selection. If the user entered the letter 'A', the SWITCH will execute the first case and call the subroutine entitled CHOICEA. After returning from that subroutine, execution will continue with the first statement following the ENDSWITCH command. If the user had entered 'B' as his choice, the CHOICEB subroutine would have been executed.

If neither 'A' nor 'B' had been entered by the user the DEFAULT case would execute. In that event the "Invalid selection" message would be displayed, the program would pause for 3 seconds, and then branch back up to the GET_CHOICE label and the process would be repeated.

In the second example, if the user had entered 'No' the first case would execute and the command file would QUIT. In all other cases, no part of the SWITCH would execute, and the command file would continue.

TRACE ON/OFF

The TRACE command allows you to "trace" the execution of a command file. If you set TRACE ON, every command will be printed to the screen, in

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contrasting colors, as it is executed. TRACE is very handy for debugging errant command files.

```
Examples:  TRACE ON                    ; set trace on
```

TRANSMIT "string" @

The TRANSMIT command sends a character string to the remote. The "string" may contain control characters using the standard translation conventions.

```
Examples:  MESSAGE "Enter your ID"     ; send the prompt
           GET S6                      ; get the ID
           TRANSMIT S6                 ; send the ID
           TRANSMIT "!"                ; plus a CR

           WAITFOR "First name:"       ; Wait for a prompt
           TRANSMIT "TOM!"             ; send the name plus a CR
```

WAITFOR "target" [delay] @ *

The WAITFOR command allows you to wait for a particular string to be received from the remote before command file execution continues. The [delay] option tells ProComm how many seconds to wait for the "target" before timing out and continuing execution. If no [delay] is specified, ProComm will wait 30 seconds.

Use the IF WAITFOR condition to test the results of a WAITFOR command.

```
Examples:  WAITFOR "first name:" 45    ; wait for the string "first name"
                                       ; for 45 seconds
           IF WAITFOR                  ; if it was found w/o timing out
                TRANSMIT "TOM!"        ; send your name
           ELSE                        ; else
                GOTO ERROR             ; go to error processing
           ENDIF
```

WAITFOR targets are not case sensitive, thus either "FIRST NAME" or "First Name" would successfully complete the command sequence above. You may also include control character in the target using the translation conventions described earlier.

```
Example:   WAITFOR "^M^JBUSY"          ; wait for CR LF then BUSY
```

WHEN "target" "response" @

The WHEN command is used to transmit a certain "response" text every time a certain "target" text is received. Once a WHEN command is initiated, it will be in effect until a CWHEN (Clear WHEN) command is found or the command file ends. For example, suppose you are calling an online service that displays a "-more-" prompt at the end of each page of display, and waits for you to enter a carriage return before it continues. By specifying the command

```
WHEN "-more-" "^M"
```

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at the beginning of the command file, you are instructing ProComm to transmit a CR (^M) every time it receives the string "-more-", thus relieving you of the task of matching every occurrence of "-more-" with a

```
WAITFOR "-more-"
TRANSMIT "^M"
```

command sequence.

```
Examples:  WHEN "continue? (Y/N)" "Y^M"       ; send a 'Y<CR>' for
                ...                           ; every "continue" received
           CWHEN                              ; turn off WHEN processing
```

Set Commands

All SET commands have the same format:

```
SET parameter value
```

The SET commands are used to change the value of the parameters in the SetUp facility (Alt-S) and the Line Settings window (Alt-P). Available values are separated by slashes (/). Because those parameters are described in detail in other sections, an in-depth discussion is not presented here. The appropriate SetUp section is indicated in parenthesis for each command.

SET ASCII etc. (ASCII Transfer Setup)
The ASCII transfer SET commands are covered below.

SET ALARM ON/OFF (General Setup)
Controls alarm sound.

SET ATIME seconds (General Setup)
Sets amount of time alarm sounds.

SET BACKSPACE IN NONDEST/DEST (Terminal Setup)
Controls destructive nature of received BS.

SET BACKSPACE OUT BACKSPACE/DELETE (Terminal Setup)
Controls character sent when BS key pressed.

SET BAUDRATE 300/1200/4800/9600/19200 (Line Settings)
Sets the baud rate.

SET BREAK milliseconds (Terminal Setup)
Sets length, in milliseconds, of break condition.

SET CR_IN CR/CR_LF (Terminal Setup)
Controls incoming CR translation.

SET CR_OUT CR/CR_LF (Terminal Setup)
Controls outgoing CR translation.

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SET DATABITS 7/8 (Line Settings)
Sets the data bits used.

SET DLDIR "path" @ (General Setup)
Sets the default download drive and directory.

SET DUPLEX HALF/FULL (General Setup)
Controls the duplex setting.

SET ENQ ON/OFF/CISB (Terminal Setup)
Controls response to ENQ (ASCII 5).

SET FLOWCTRL ON/OFF (Terminal Setup)
Controls use of XON/OFF flow control.

SET HOSTPSWD "string" @ (Host Mode Setup)
Sets the host mode password.

SET PARITY EVEN/ODD/NONE/MARK/SPACE (Line Settings)
Controls parity.

SET PORT COM1/COM2/COM3/COM4 (Line Settings)
Selects serial port to use.

SET RDELAY seconds (Modem Setup)
Determines timeout period for redials.

SET SCROLL ON/OFF (Terminal Setup)
Determines scroll setting.

SET SHELLPSWD "string" @ (Host Mode Setup)
Sets the host mode shell password.

SET SOUND ON/OFF (General Setup)
Controls sound effects.

SET STOPBITS 1/2 (Line Settings)
Sets the stop bits used.

SET SWRITE BIOS/DIRECT (General Setup)
Determines the screen write method.

SET TRANSLATE ON/OFF (General Setup)
Controls use of the translate table.

SET TXPACE millisecs
Determines pacing for all outgoing character strings.

SET WRAP ON/OFF (Terminal Setup)
Controls line wrap.

Set ASCII Commands (ASCII Transfer Setup)

SET ASCII BLANKEX ON/OFF
Controls expansion of blank lines during ASCII uploads.

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SET ASCII CHARPACE milliseconds
Sets the character pacing (in milliseconds).

SET ASCII DN_CR CR/CR_LF/STRIP
Controls translation of incoming CRs during ASCII downloads.

SET ASCII DN_LF LF/CR_LF/STRIP
Controls translation of incoming LFs during ASCII downloads.

SET ASCII ECHO ON/OFF
Controls local echo during ASCII uploads.

SET ASCII LINEPACE tenths
Sets line pacing timing (in 1/10 seconds).

SET ASCII PACECHAR number
Sets the pace character used. Specify as an ASCII decimal value.

SET ASCII UP_CR CR/CR_LF/STRIP
Controls translation of outgoing CRs in ASCII uploads.

SET ASCII UP_LF LF/CR_LF/STRIP
Controls translation of outgoing LFs in ASCII uploads.

Set Kermit Commands

SET KERMIT CQUOTE char
Set the Ctrl quote character.

SET KERMIT PACKSIZE number
Set the maximum packet size.

SET KERMIT PADCHAR char
Select the pad character.

SET KERMIT PADNUM number
Set the number of pad characters.

SET KERMIT 8QUOTE char
Select the 8th bit quote character.

SET KERMIT HANDSHAKE char
Select the handshake character.

SET KERMIT EOLCHAR char
Select the end of line character.

SET KERMIT BLOCKCHECK 1/2/3
Select the block check type. 1 = 1 byte checksum, 2 = 2 byte checksum, 3 = 3 byte CRC.

SET KERMIT FILETYPE TEXT/BINARY
Select the transfer file type.

Arguments listed as "char" should use the ASCII decimal value of the desired character. For example, to use XON (ASCII 17) as the HANDSHAKE

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character, issue the command

```
SET KERMIT HANDSHAKE 17
```

ERROR MESSAGES

If an error is encountered during the execution of a command file, an error message will be displayed and command file execution will stop. Error messages begin with the error number (described below), followed by the line number of the line containing the error, followed by the erroneous line itself, for example:

```
ERROR 2, LINE 6: goto missing_label
```

ERROR NUMBER	DESCRIPTION
1	Invalid token.
2	Unexpected end of file.
3	Unexpected CASE statement.
4	Unexpected DEFAULT statement.
5	Unexpected ENDCASE statement.
6	Unexpected ENDSWITCH statement.
7	Unexpected ELSE statement.
8	Unexpected ENDIF statement.
9	Unexpected token.
10	Missing token.
11	Stack overflow.
12	Stack underflow.

ERROR 1 - Invalid token

Indicates that an unidentified keyword was found, or that an invalid argument was included.

ERROR 2 - Unexpected end of file

Indicates that the end of file was reached while executing some command. May be triggered by IF statements without their corresponding ENDIF; SWITCH statements without an ENDSWITCH; or when attempting to find a label that does not exit.

ERROR 3 to 8 - Unexpected [token]

Indicates that the given keyword was found in an unexpected place, i.e. an ELSE command with no preceding IF, or a DEFAULT command with no preceding SWITCH.

ERROR 9 - Unexpected token

Indicates that a keyword or argument was supplied where none are expected.

ERROR 10 - Missing token

Indicates that a token or argument was expected, but not supplied.

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ERROR 11 - Stack overflow

Indicates that nesting has gone too deep, i.e. an 11th level in a nested if statement, or an attempt to access an 11th level subroutine.

ERROR 12 - Stack underflow

Indicates the attempt to return a level when no nesting has occurred. For example a RETURN command when no GOSUB has executed.

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8. H O S T M O D E

ProComm includes a limited remote access facility known as Host Mode. Host Mode allows remote access to your computer for tasks such as file transfer and DOS shell access. In addition, it provides password security, a logon message, and can maintain a history of logons. Host Mode is intended to allow a user access to his home machine from work (or vice versa); it is not intended as a multi-user message base or bulletin board system.

Host Mode Setup

Host mode requires some setup before it can be used. Setup is composed of three basic parts: modem, operating system, and ProComm. Each must be correctly configured before attempting to use Host Mode.

Modem Setup

Host Mode depends quite a bit on the correct installation of your modem. Because there are many different modems available, not all of which we are familiar with, you may have to do a bit of reading in your modem manual.

First, Carrier Detect (CD) on your modem must be set to follow the true state of carrier. Carrier detect must not be forced true, or high, by dip switch settings. Carrier detect also should not be set to follow DTR. It should be set to follow the "real state", or the "RS-232 convention" or however your manual says it. Carrier detect is usually controlled by a dip switch setting on your modem, although on some new modems, like the Hayes 2400, you use a software command like &C1 and &D2. On a Hayes 1200 external modem you should have dip switch 6 in the UP position.

Next, data terminal ready (DTR) should also follow the real state. It should not be forced high. On a Hayes modem, this means switch 1 is UP.

Your cable might also have an impact on correct operation. Your modem manual should have an explanation of proper cable configurations.

Operating System Setup

Operating system setup revolves around the CONFIG.SYS file. CONFIG.SYS is a configuration file which contains commands used to configure your system. Each time you start DOS, the operating systems searches the root directory of the drive you booted from for a file called CONFIG.SYS. If it is found, DOS reads the file and interprets the commands it contains.

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You may create a CONFIG.SYS file using your favorite editor or word processor (be sure to save it as a non-document, or ASCII file). If you add or change any of the commands in the configuration file, or create a new one, the changes are not in effect until the next time you start DOS, so be sure to reboot. Consult your DOS manual for more information about configuring your system.

The command in the CONFIG.SYS file that we are concerned with is the FILES= statement. This command controls the number of files that can be open at one time. The operating system default is 8; for ProComm we recommend 20 or higher.

To set this statement, create (or edit) a CONFIG.SYS file in the root directory of the disk that you boot with. Include in the CONFIG.SYS file a line that says

```
FILES=x
```

where x is 20 or greater. A quick and easy way to create the CONFIG.SYS file is this:

At the DOS prompt type

```
COPY CON CONFIG.SYS <CR>
FILES=20 <CR>
^Z <CR>                          (Press Ctrl-Z then <CR>)
```

Remember, the CONFIG.SYS file, containing the FILES= statement, must be present in the root directory when you boot. It has no effect otherwise. Increasing the FILES= parameter can also alleviate other problems indicated by "CAN'T OPEN FILE" messages and similar notices.

ProComm Setup

The SetUp facility (Alt-S) contains a section for Host Mode Setup. The Host Mode setup screen contains six host options which must be initialized. These options are also described in Section 3.

The first option is the Host ID String. The Host ID String is a text message that is displayed to callers after they connect. It is usually used as a greeting.

The second option is the modem auto-answer string. This string is the command sent to the modem to place it into auto answer mode. The default string, set for Hayes compatible modems, is "~~~+++~~~ATS0=1!", where

~~~ is a 1 1/2 second pause

+++ drops the modem into command state

~~~ is a 1 1/2 second pause

AT is the command prefix

S0=1 sets modem to answer after one ring

! sends a <CR>.

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When host mode is exited, the Modem Initialization String (specified in the Modem setup section) is sent to the modem to reset it. If you do not want auto-answer to be on when you are not in host mode, include the command to turn it off within the Modem Initialization String. That command is S0=0 for Hayes compatible modems.

The third host option is the Host Access Password. It may be up to 8 characters long. Callers must match the password exactly, including upper- and lower-case. If you set the host access password to null, callers need only press <CR> at the password prompt to be allowed on your system.

The fourth host option is the DOS Shell Password. This password provides a second level of protection before callers are allowed access to the system level. Be very careful with this one; you don't want just anyone to have access to the operating system level on your machine.

The fifth host setup option is the Auto Baud Detect method. Three choices are available: NONE, KEY HIT and MODEM MSG. These choices determine what technique, if any, ProComm will use to attempt to synchronize baud rates with callers.

The last host option is the Connection Type. This allows you to run Host Mode either directly connected to another machine, or by using a modem. When set to Direct, ProComm automatically assumes a connection exists, and does not look for carrier or attempt baud rate synchronization.

Once you have set the options and assured that your modem is correctly configured, you can place ProComm into Host Mode by pressing Alt-Q. The auto-answer string is sent to the modem, and the local console displays "Waiting...". In addition, a line is added to PROCOMM.HST, the host audit trail history file, that records the time and date.

When a call comes in, and an Auto Baud Detect method other than None is specified, ProComm will attempt to match baud rates. After the connection is complete, ProComm will send the Host ID String and prompt the user for his name. The name is for informational purposes only. The caller's name is then recorded in the history file. ProComm then prompts the caller for the password. The caller must match the password completely, including case. All password attempts, both successful and otherwise, are recorded in the history file. Callers get three chances to match the password; if they are unsuccessful after three tries, ProComm will hang up on them.

If the caller makes it past the password, ProComm will display the contents of a special file called PROCOMM.MSG, if that file exists. You can use this file as a welcome message, to display character graphics, or whatever. Every 23 lines ProComm will halt, display a "[MORE]" message, and wait for any keystroke from the caller. When a keystroke is received, the display of the file continues. Use of the .MSG file is optional.

After PROCOMM.MSG is displayed (if it is), the caller is presented with the host menu:

F)iles C)hat D)ownload U)pload S)hell G)oodbye

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Callers make their choices by entering the first letter of an option and pressing <CR>.

The F)iles option will send a list of the files in the current directory to the caller. The list is not displayed on the local console. F)iles uses the same facility as the Alt-F command, described earlier.
If the caller chooses C)hat, an alarm on the host computer will sound for 30 seconds. The Host operator can press Space to chat with the caller. Pressing any other key will end the alarm and redisplay the host menu. If you have the alarm sound set off (via general setup at the Alt-S menu) no bells will sound on the local end. Press <ESC> to return to the host menu when you are done chatting.

D)ownload and U)pload work pretty much the same. The caller is presented with the file transfer menu:

K)ermit M)odem7 T)elink X)modem Y)modem batch

After selecting a protocol the caller may be prompted for a filename, depending upon the transfer direction and protocol used. The standard file transfer routines are used to perform the transfers. Users are only allowed to download files in the current directory. Similarly, all files uploaded will go to the current directory.

The S)hell command is very powerful, but it also has the potential of being very dangerous. It performs the equivalent of a "CTTY COMx" command, which basically redirects all console I/O out the COM port. The Shell command puts the caller in charge of your computer at the operating system (DOS) level. This means that a user can format your disk or whatever, so be very, very careful about who is allowed access to this command. Use the Shell Password to protect yourself. To return to ProComm, the user must enter "EXIT" at the DOS prompt.

There are some restrictions when using the S)hell command. For one, do not run programs that write directly to the screen buffer. This will cause the host machine to appear to lock up. If the host machine is running Dosedit, CED or a similar program, backspaces, escapes and possibly other key sequences can lock up the machine. This problem arises from DOS and the other programs, not ProComm: there is nothing we can do about it. In addition, some machines we have tried the host mode on do not pipe I/O to the correct port. We have not yet determined if this is a DOS or BIOS problem, but be aware that it may occur. We suggest that you thoroughly test Host Mode before making it available to callers.

The G)oodbye option logs the caller out and places a notice to that effect in the history file.

One additional command that is not listed on the menu allows a caller to shut down Host Mode from the remote side. If a user enters a Ctrl-Z, he will be prompted for a password. ProComm uses the Shell Password for this feature. If the user correctly enters the password, he will be logged off and ProComm will drop out of Host Mode. This is useful if you begin Host Mode from a command file, and wish to continue with the execution of that command file.

On the local side, the host operator has several options. You may press <ESC> to leave host mode and return to Terminal Mode. Press Ctrl-X to

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APPENDIX A - TERMINAL EMULATION

Overview

ProComm emulates a number of popular terminals. ProComm handles most of the standard features and many of the extended features of the terminals emulated. Functions of these terminals that are not emulated are still processed to insure that all control codes are handled properly.

Because of the wide variety of protocol convertors on mainframe front-end processors, some keys may not function as expected. These emulations have been tested with the mainframe systems at the University of Missouri, Columbia and the University of California, Berkeley, as well as within private industry. If you encounter a problem, refer to the TRANSMITTED CODES column in the terminal emulation charts on the following pages to see if ProComm is sending the code your protocol convertor is expecting.

If you encounter any errors in these emulations or have any questions, please let us know.

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Digital Equipment Corporation VT-100 and VT-102

ProComm supports the standard VT-100 and VT-102 functions. Supported functions include: full/half duplex, set/reset modes, scroll region, special graphics character set, US & UK character sets, keypad application mode, cursor control, erase functions, insert/delete lines, full display attributes (including extensions for ANSI color graphics), programmable tabs and printer control functions. 132 column mode is not supported. ProComm responds to the Identify and Device Attributes commands with ESC[?1;2c (VT-100 with advanced video option). ProComm responds to the Ctrl-E (ENQ) enquiry function by sending the string stored for keyboard macro Alt-0. This "answerback message" is sent only if ANSWER BACK is enabled in ProComm setup (Alt-S). Keypad Application Mode functions are mapped to ProComm function keys as shown in the chart below.

ProComm KEYS	DEC VT-100 FUNCTION	TRANSMITTED CODES
Tab	Horizontal Tab	0x09
Delete	Character Delete	0x7F
Home	Home Cursor	0x1B5B48
Cursor Up	Cursor Up	0x1B5B41
Cursor Down	Cursor Down	0x1B5B42
Cursor Left	Cursor Left	0x1B5B44
Cursor Right	Cursor Right	0x1B5B43
Ctrl-PgDn	Clear screen	0x1B5B481B5B324A
End	Erase end of line	0x1B5B4B
Ctrl-Home	Insert Line	0x1B5B4C
Ctrl-PgUp	Delete Line	0x1B5B4D
Ctrl-J	Line Feed	0x0A
F7	Keypad Application mode 1	0x1B4F71
F8	Keypad Application mode 2	0x1B4F72
Shift-F7	Keypad Application mode 3	0x1B4F73
F5	Keypad Application mode 4	0x1B4F74
Shift-F6	Keypad Application mode 5	0x1B4F75
Shift-F5	Keypad Application mode 6	0x1B4F76
F3	Keypad Application mode 7	0x1B4F77
F4	Keypad Application mode 8	0x1B4F78
Shift-F3	Keypad Application mode 9	0x1B4F79
F9 or F10	Keypad Application mode 0	0x1B4F70
F1	Program Function 1 (PF1)	0x1B4F50
F2	Program Function 2 (PF2)	0x1B4F51
Shift-F1	Program Function 3 (PF3)	0x1B4F52
Shift-F2	Program Function 4 (PF4)	0x1B4F53
Shift-F4	Keypad Application mode DASH	0x1B4F6D
Shift-F5	Keypad Application mode COMMA	0x1B4F6C
Shift-F9	Keypad Application mode PERIOD	0x1B4F6E
Shift-F8	Keypad Application mode ENTER	0x1B4F4D

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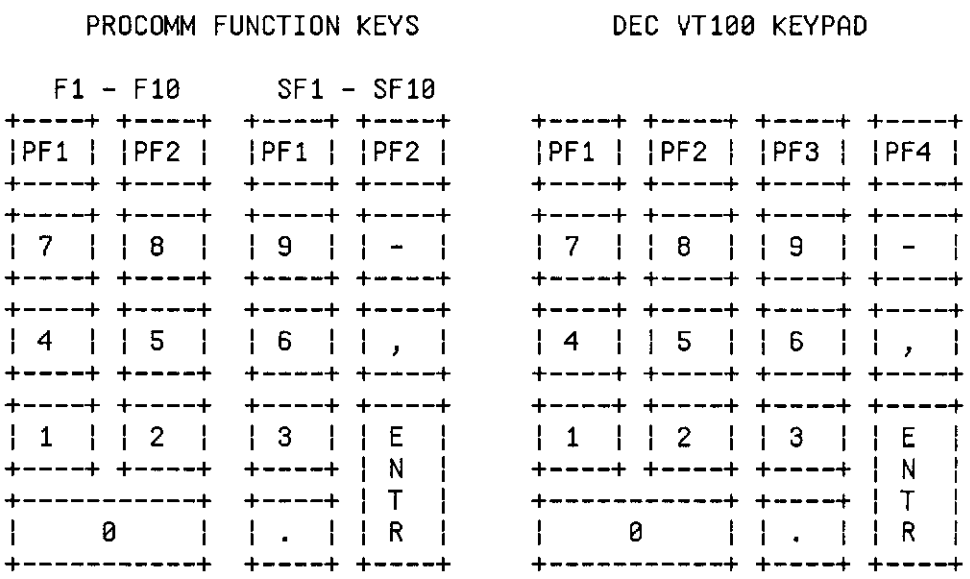
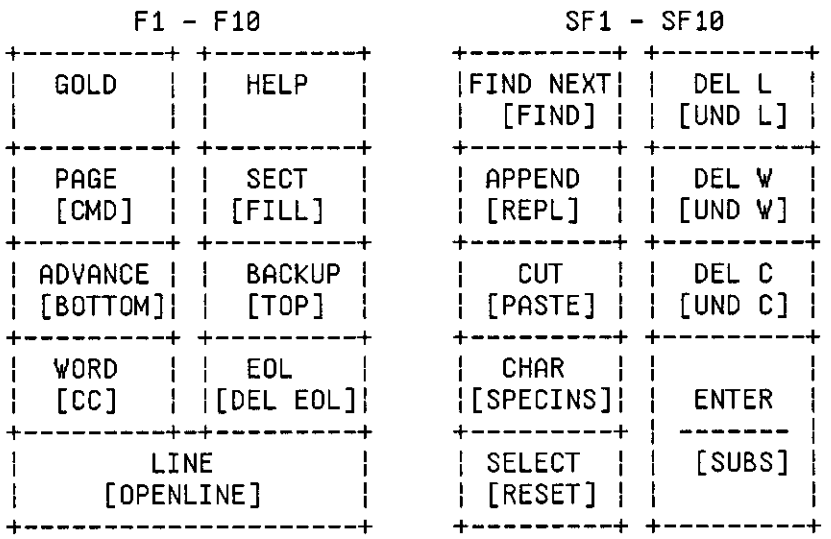
Mapping of VT-100 Keypad Application Mode Functions



Keypad Application Mode for VAX/VMS EDT Editor



Press GOLD get first to get bracketed [] functions

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IBM 3101

ProComm supports the standard IBM 3101 Model 1x/2x functions. Block mode is not supported. Supported functions include: full/half duplex, full character set, scroll on/off, program function keys, cursor control, and erase functions.

ProComm KEYS	IBM 3101 FUNCTION	TRANSMITTED CODES
Tab	Horizontal Tab	0x09
Delete	Character Delete	0x7F
Home	Home Cursor	0x1B48
Cursor Up	Cursor Up	0x1B41
Cursor Down	Cursor Down	0x1B42
Cursor Left	Cursor Left	0x1B44
Cursor Right	Cursor Right	0x1B43
Ctrl-PgDn	Clear screen	0x1B4C
End	Erase end of line	0x1B49
Ctrl-End	Erase end of screen	0x1B4A
F1	Program Function 1 (PF1)	0x1B610D
F2	Program Function 2 (PF2)	0x1B620D
F3	Program Function 3 (PF3)	0x1B630D
F4	Program Function 4 (PF4)	0x1B640D
F5	Program Function 5 (PF5)	0x1B650D
F6	Program Function 6 (PF6)	0x1B660D
F7	Program Function 7 (PF7)	0x1B670D
F8	Program Function 8 (PF8)	0x1B680D

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Televideo 900 Series

ProComm supports the standard Televideo 900 series functions. Supported functions include: full/half duplex, program function keys, cursor control, erase functions, and full display attributes. The main difference between the 910/920 and the 925/950 emulations is in the codes generated for cursor down and in control codes for display attributes. The special graphics character set and user loadable status line are supported.

ProComm KEYS	TELEVIDEO 9xx FUNCTION	TRANSMITTED CODES
Tab	Horizontal Tab	0x09
Backtab	Reverse Tab	0x1B49
Insert	Insert Character	0x1B51
Ctrl-Home	Insert Line	0x1B45
Delete	Delete Character	0x1B57
Ctrl-PgUp	Delete Line	0x1B52
Home	Home Cursor	0x1E
Cursor Up	Cursor Up	0x1B
Cursor Down	Cursor Down (910/920)	0x0A
	Cursor Down (925/950)	0x16
Cursor Left	Cursor Left	0x18
Cursor Right	Cursor Right	0x1C
Ctrl-PgDn	Clear Screen	0x1A
End	Line Erase	0x1B54
Ctrl-End	Page Erase	0x1B59
F1	Function 1 (F1)	0x01400D
F2	Function 2 (F2)	0x01410D
F3	Function 3 (F3)	0x01420D
F4	Function 4 (F4)	0x01430D
F5	Function 5 (F5)	0x01440D
F6	Function 6 (F6)	0x01450D
F7	Function 7 (F7)	0x01460D
F8	Function 8 (F8)	0x01470D
F9	Function 9 (F9)	0x01480D
F10	Function 10 (F10)	0x01490D
Shift-F1	Function 11 (F11)	0x014A0D
Shift-F2	FUNCT	*see below
Shift-F3	Shift Line Erase	0x1B74
Shift-F4	Shift Page Erase	0x1B79
Shift-F5	Shift Line Insert	0x1B4E
Shift-F6	Shift Line Delete	0x1B4F
Shift-F7	Shift Character Insert	0x1B71
Shift-F8	Shift Character Delete	0x1B72

* To emulate the Televideo FUNCT key operation, press and release Shift-F2, then press and release the key you wish to use in conjunction with FUNCT. This will send the standard 3 byte FUNCT sequence: <SOH> <key pressed> <CR>.

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Lear Sieglar ADM 3/5

ProComm supports the standard ADM 3/5 series functions. Supported functions include: full/half duplex, full character set, erase functions, and cursor control.

ProComm KEYS	ADM 3/5 FUNCTION	TRANSMITTED CODES
Tab	Horizontal Tab	0x1B49
Backtab	Reverse Tab	0x1B51
Home	Home Cursor	0x1E
Cursor Up	Cursor Up	0x1B
Cursor Down	Cursor Down	0x0A
Cursor Left	Cursor Left	0x18
Cursor Right	Cursor Right	0x1C
Ctrl-PgDn	Clear screen	0x1A
End	Erase end of line	0x1B54

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Heath/Zenith 19

ProComm supports the standard Heath/Zenith 19 functions. Supported functions include: full/half duplex, full character set, program function keys, erase functions, cursor control, and display attributes.

ProComm KEYS	H-19 FUNCTION	TRANSMITTED CODES
Tab	Horizontal Tab	0x09
Home	Home Cursor	0x1B595F5F
Cursor Up	Cursor Up	0x1B41
Cursor Down	Cursor Down	0x1B42
Cursor Left	Cursor Left	0x1B44
Cursor Right	Cursor Right	0x1B43
Ctrl-PgDn	Clear screen	0x1B4C
End	Erase end of line	0x1B45
Ctrl-Home	Insert Line	0x1B4C
Ctrl-PgUp	Delete Line	0x1B4D
F1	Program Function 1 (PF1)	0x1B53
F2	Program Function 2 (PF2)	0x1B54
F3	Program Function 3 (PF3)	0x1B55
F4	Program Function 4 (PF4)	0x1B56
F5	Program Function 5 (PF5)	0x1B57
F6	Program Function 6 (PF6)	0x1B50
F7	Program Function 7 (PF7)	0x1B51
F8	Program Function 8 (PF8)	0x1B52
F9	Program Function 9 (PF9)	0x1B30
F10	Program Function 10 (PF10)	0x1B31

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ADDS Viewpoint

ProComm supports the standard ADDS Viewpoint functions. Supported functions include: full/half duplex, erase functions, inset/delete functions, cursor control, and display attributes.

ProComm KEYS	ADDS FUNCTION	TRANSMITTED CODES
Tab	Horizontal Tab	0x09
Home	Home Cursor	0x1B595F5F
Cursor Up	Cursor Up	0x01
Cursor Down	Cursor Down	0x0A
Cursor Left	Cursor Left	0x15
Cursor Right	Cursor Right	0x06
Ctrl-PgDn	Clear screen	0x0C
End	Erase end of line	0x1B4B
Ctrl-End	Erase end of screen	0x1B6B
Ins	Insert Character	0x1B46
Ctrl-Home	Insert Line	0x1B4D
Del	Delete Character	0x1B45
Ctrl-PgUp	Delete Line	0x1B6C
F1	Function 1 (F1)	0x02310D
F2	Function 2 (F2)	0x02320D
F3	Function 3 (F3)	0x02330D
F4	Function 4 (F4)	0x02340D
F5	Function 5 (F5)	0x02350D
F6	Function 6 (F6)	0x02360D
F7	Function 7 (F7)	0x02370D
F8	Function 8 (F8)	0x02380D
Shift F1	Shift Function 1 (F1)	0x02190D
Shift F2	Shift Function 2 (F2)	0x02290D
Shift F3	Shift Function 3 (F3)	0x02390D
Shift F4	Shift Function 4 (F4)	0x02490D
Shift F5	Shift Function 5 (F5)	0x02590D
Shift F6	Shift Function 6 (F6)	0x02690D
Shift F7	Shift Function 7 (F7)	0x02790D
Shift F8	Shift Function 8 (F8)	0x02890D

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WYSE 100

ProComm supports the standard WYSE functions. Supported functions include: full/half duplex, erase functions, inset/delete functions, cursor control, and display attributes.

ProComm KEYS	WYSE 100 FUNCTION	TRANSMITTED CODES
Tab	Horizontal Tab	0x09
Backtab	Reverse Tab	0x1B49
Insert	Insert Character	0x1B51
Ctrl-Home	Insert Line	0x1B45
Delete	Delete Character	0x7F
Ctrl-PgUp	Delete Line	0x1B52
Home	Home Cursor	0x1E
Cursor Up	Cursor Up	0x1B
Cursor Down	Cursor Down	0x0A
Cursor Left	Cursor Left	0x18
Cursor Right	Cursor Right	0x1C
Ctrl-PgDn	Clear Screen	0x1A
End	Line Erase	0x1B54
Ctrl-End	Page Erase	0x1B59
F1	Function 1 (F1)	0x01400D
F2	Function 2 (F2)	0x01410D
F3	Function 3 (F3)	0x01420D
F4	Function 4 (F4)	0x01430D
F5	Function 5 (F5)	0x01440D
F6	Function 6 (F6)	0x01450D
F7	Function 7 (F7)	0x01460D
F8	Function 8 (F8)	0x01470D
Shift F1	Shift Function 1 (F1)	0x01480D
Shift F2	Shift Function 2 (F2)	0x01490D
Shift F3	Shift Function 3 (F3)	0x014A0D
Shift F4	Shift Function 4 (F4)	0x014B0D
Shift F5	Shift Function 5 (F5)	0x014C0D
Shift F6	Shift Function 6 (F6)	0x014D0D
Shift F7	Shift Function 7 (F7)	0x014E0D
Shift F8	Shift Function 8 (F8)	0x014F0D

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ANSI-BBS

This is the recommended emulation for use with bulletin board systems that use ANSI graphics and color. The ANSI-BBS mode processes the ANSI codes given in the DOS technical reference manual, and behaves in the same manner as the DOS ANSI.SYS device driver. (ProComm does not use the ANSI.SYS driver itself). This emulation is similar to the VT-100 emulation, but the VT-100 emulation handles normal, bold, and reverse video in a different manner. The VT-100 keyboard mapping is used with this emulation.

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APPENDIX B - COMMAND REFERENCE GUIDE

Major Functions

Dialing Directory	Alt-D
Automatic Redial	Alt-R
Keyboard Macros	Alt-M
Line Settings	Alt-P
Translate Table	Alt-W
Editor	Alt-A
Exit	Alt-X
Host Mode	Alt-Q
Chat Mode	Alt-O
DOS Gateway	Alt-F4
Command File	Alt-F5
Redisplay	Alt-F6

Utility Functions

Program Info	Alt-I
Setup Screen	Alt-S
Kermit Server Commands	Alt-K
Change Directory	Alt-B
Clear Screen	Alt-C
Toggle Duplex	Alt-E
Hang Up Phone	Alt-H
Elapsed Time	Alt-T
Print On/Off	Alt-L
Set Colors	Alt-Z
Auto Answer	Alt-Y
Toggle CR - CR/LF	Alt-F3
Break Key	ALT-F7, Ctrl-Break

File Functions

Send Files	PgUp
Receive Files	PgDn
File Directory	Alt-F
View a File	Alt-V
Screen Dump	Alt-G
Log Toggle	Alt-F1
Log Hold	Alt-F2

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When I'm using a multi-tasking operating system and running ProComm in the background, window displays bleed through to the active partition.

Answer:

Go into the general SetUp screen and set ProComm to use the BIOS screen write method. It is much slower but will not cause the bleed through that you are experiencing.

Question:

When I try to use the DOS gateway it says 'Command processor not found'. What does this mean?

Answer:

In order to use the gateway, ProComm must load a secondary copy of the command processor (COMMAND.COM). It uses the environment variable COMSPEC to determine the name and location of the command processor. COMSPEC is set at system startup to the drive, directory and program you booted from. Problems can arise if you boot off a floppy, and then change the floppy in the boot disk drive. To use the gateway, and the Alt-F function, be sure that COMSPEC is set and that the command processor is where COMSPEC says it is.

Question:

I can't use the help screen because MultiLink grabs the ALT-F10 keystroke before ProComm can get it.

Answer:

MultiLink provides an 'escape' keystroke to avoid that problem. Simply press Alt-F9 before pressing Alt-F10 and MultiLink will let the Alt-F10 through to ProComm.

Question:

When I call online systems like CompuServe or the Source via Telenet, I get nothing but garbage characters on my screen.

Answer:

When using public networks such as Telenet or Tymnet, you must either call in at E/7/1 (even parity, 7 data and 1 stop bits), or strip the high bit off each incoming character using the translate table.

Question:

When I try to run Host Mode it always thinks that somebody is online; that is, it will automatically go to the "Name: " prompt and then keep cycling.

Answer:

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You must set your modem so that it does not force carrier detect (CD) high, or true. This is usually controlled by a dip switch on your modem. For example, on a Hayes external mode, set dip switch 6 to the up position.

Question:

I'm trying to get two computers running ProComm to talk to each other using a direct connection. What do I do?

Answer:

You need to connect the two machines using a null modem cable. A null modem cable has the usual configuration for a serial port to modem connection, with the exception that pins 2 and 3 must be crossed. That is pin 2 on one end needs to go to pin 3 on the other, and vice versa. Then make sure that each side is using the same line parameters. You should be able to talk back and forth between the machines while in terminal, or chat modes (like Crosstalk's GO LOCAL). You may even run Host Mode on one machine; just remember to set the Connection Type option in the Host Mode Setup area to Direct.

Question:

ProComm doesn't work with my NeoClone modem that I bought in a garage sale in Taiwan. Why not?

Answer:

ProComm, by default, is set for use with Hayes compatible modems. If your modem is not truly Hayes compatible, you will have to change some of the SetUp Options, especially the Modem Initialization string and the Modem Dial command, to values correct for your modem. This may entail a little digging in your modem manual. User groups and local bulletin boards may be able to provide information on using your particular brand of modem.

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APPENDIX D - PROCOMM TECHNICAL SPECIFICATIONS

Receive buffer size	2048 Bytes
Redisplay buffer size	10000 Bytes
Baud rates supported	300
	1200
	2400
	4800
	9600
	19200
File transfer protocols	ASCII
	XMODEM
	WXMODEM
	TELINK
	YMODEM
	MODEM7
	KERMIT
	COMPUSERVE B
Serial ports supported	COM1 0x3F8 IRQ4
	COM2 0x2F8 IRQ3
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Video buffer addresses supported	COLOR 0xB8000
	MONO 0xB0000
Interrupt vectors used	0x0B
	0x0C
	0x1B
	0x23

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APPENDIX E - USER SUPPORTED SOFTWARE

User-supported software is a means for the computing community to receive quality software while directly supporting software authors. It is based on the ideas that:

> The value and utility of software is best assessed by the user on his or her own system. Only after using a program can one really determine whether it serves personal applications, needs and tastes.
>
> The creation of independent personal computer software can and should be supported by the computing community.
>
> Copying of programs should be encouraged, rather than restricted. The ease with which software can be distributed outside traditional commercial channels reflects the strength, rather than the weakness, of electronic information.

Under the user supported concept, anyone may request a copy of a user-supported program by sending a blank, formatted disk to the program author together with an addressed, postage-paid return mailer. A copy of the program, along with documentation on disk, will be sent by return mail on the user's disk.

The program carries a notice suggesting registration for the program. You should register if you are going to use the program on a regular basis. Regardless of whether you register and use the program, you are encouraged to copy and distribute the program for the private, non-commercial, trial use of others.

User supported software is generally not public domain material; most programs of this nature carry a copyright notice. Rather, the author has licensed you to copy and use the program under certain conditions. Likewise, user supported software is not intended to be free software; it is an experiment in economics, not altruism. It is intended to provide quality software at a low price, while directly supporting the author, without the overhead of distributors, dealers and advertising that produces $500 software packages.

User supported software is having a hard time. More and more packages are being taken out of this market, and offered as more traditional, and expensive, products. The reason for this is simple: lots of people are using the packages but very few are paying for them. And without the support of the users, there is absolutely no incentive for software authors to provide their programs in this fashion.

There are many good reasons to register. Besides supporting the author (that is, paying for the software you use), you generally get better support and receive mailed notification of updates and other products.

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Some authors provide diskettes and documentation with registration; due to our low registration fee Datastorm Technologies, Inc. does not, although diskettes and manuals are available at a very low price (see Ordering Information in the front of this manual).

In conclusion, if you regularly use a user supported program (sometimes called Freeware or Shareware) and have not sent in a registration to the author, please do so now. Only through the financial support of users will this kind of inexpensive software continue to be available.

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APPENDIX F - PRODUCT SUPPORT

In order to support our users, and to provide a means of distribution, we have implemented a bulletin board system you can use to communicate with us. If you have questions or comments you may call us up and leave a note. In your note, describe as completely as possible the problem you are having. Let us know your machine configuration, your ProComm configuration and version and any resident software you are using. Describe what steps you take before the problem occurs, and exactly what the program does when it occurs. If you do not provide us with a complete description of the problem there is little we can do to help. We'll do our best to keep you up and running, but if you are not a registered user we do not guarantee to provide support of any kind.

You'll always be able to find the latest version of ProComm on the BBS. The number for our board is (314) 449-9401. The board is operational 24 hours per day. Due to the incredibly high volume of calls that we are receiving, the BBS is often busy. You will probably need to put ProComm into auto redial and let it work for a while before you get in. We plan to install a second line for the benefit of registered users.

If you do go online to use, please remember a few things:

> We have thousands of users to support, plus a product to maintain and a business to run. You will most likely not receive an immediate response. Please be patient. We usually take care of registered users in 2 or 3 days at the most.
>
> We do not guarantee to provide support of any kind to non-registered users. We do, in fact, provide many hours of support to non-paying users, but we do this at our discretion. Non-supporting users who demand support from us are usually out of luck. Please be patient, and please be polite.

In addition to our board, several fine systems always carry the latest version of ProComm. They are:

Computer Aide BBS
Mike Johnson, Sysop
Tulsa, OK. (918) 493-2137
2400 baud, 24 hours a day

ATL/FIDO1
Ken Shackelford, Sysop
Woodstock, GA. (404) 928-1876
2400 baud, 24 hours a day

PConnecticut BBS
John O'Boyle, Sysop
West Hartford, CT. (203) 521-1991
2400 baud, 24 hours a day

TBC BBS
Dave Staehlin, Sysop
Albuquerque, NM, (505) 821-7379
2400 baud, 24 hours a day

Underdog BBS
Sal Manaro, Sysop
Seattle, WA. (206) 725-9233
2400 baud, 24 hours a day

Rowlett RBBS
Dan Kardell, Sysop
Rowlett, TX, (214) 475-4598
2400 baud, 24 hours a day

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WELLSPRING BBS
Steve Clancy, Sysop
Irvine, CA, (714) 856-7996
1200 baud, 5pm-8am M-F,
24 hours weekends

IBM/PC SIG, The Source
Mike Todd, Sysop
The Source (800) 336-3330 (voice)
Mike Todd (213) 439-6104 (voice)

ProComm is also found on a host of other bulletin board systems, user groups and the like.

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